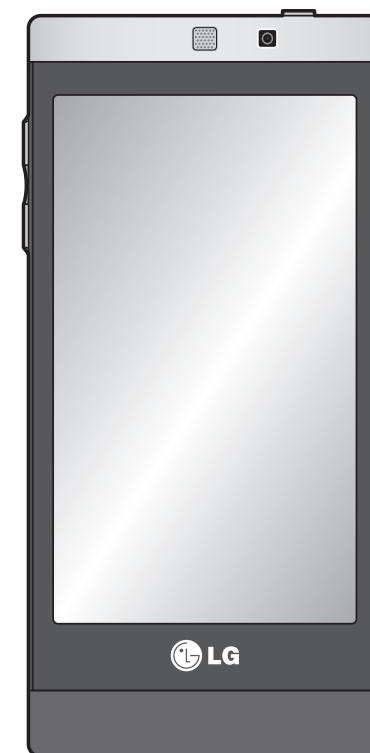




Service Manual

Service Manual

GD880



Model : GD880



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1. INTRODUCTION

1.1 Purpose

This manual provides the information necessary to repair, calibration, description and download the features of this model.

1.2 Regulatory Information

A. Security

Toll fraud, the unauthorized use of telecommunications system by an unauthorized part (for example, persons other than your company's employees, agents, subcontractors, or person working on your company's behalf) can result in substantial additional charges for your telecommunications services. System users are responsible for the security of own system. There are may be risks of toll fraud associated with your telecommunications system. System users are responsible for programming and configuring the equipment to prevent unauthorized use. The manufacturer does not warrant that this product is immune from the above case but will prevent unauthorized use of common-carrier telecommunication service of facilities accessed through or connected to it.

The manufacturer will not be responsible for any charges that result from such unauthorized use.

B. Incidence of Harm

If a telephone company determines that the equipment provided to customer is faulty and possibly causing harm or interruption in service to the telephone network, it should disconnect telephone service until repair can be done. A telephone company may temporarily disconnect service as long as repair is not done.

C. Changes in Service

A local telephone company may make changes in its communications facilities or procedure. If these changes could reasonably be expected to affect the use of the this phone or compatibility with the network, the telephone company is required to give advanced written notice to the user, allowing the user to take appropriate steps to maintain telephone service.

D. Maintenance Limitations

Maintenance limitations on this model must be performed only by the manufacturer or its authorized agent. The user may not make any changes and/or repairs expect as specifically noted in this manual. Therefore, note that unauthorized alternations or repair may affect the regulatory status of the system and may void any remaining warranty.

1. INTRODUCTION

E. Notice of Radiated Emissions

This model complies with rules regarding radiation and radio frequency emission as defined by local regulatory agencies. In accordance with these agencies, you may be required to provide information such as the following to the end user.

F. Pictures

The pictures in this manual are for illustrative purposes only; your actual hardware may look slightly different.

G. Interference and Attenuation

Phone may interfere with sensitive laboratory equipment, medical equipment, etc. Interference from unsuppressed engines or electric motors may cause problems.

H. Electrostatic Sensitive Devices

ATTENTION

Boards, which contain Electrostatic Sensitive Device (ESD), are indicated by the sign. Following information is ESD handling:



- Service personnel should ground themselves by using a wrist strap when exchange system boards.
- When repairs are made to a system board, they should spread the floor with anti-static mat which is also grounded.
- Use a suitable, grounded soldering iron.
- Keep sensitive parts in these protective packages until these are used.
- When returning system boards or parts like EEPROM to the factory, use the protective package as described.

1.3 Abbreviations

For the purposes of this manual, following abbreviations apply:

APC	Automatic Power Control
BB	Baseband
BER	Bit Error Ratio
CC-CV	Constant Current – Constant Voltage
DAC	Digital to Analog Converter
DCS	Digital Communication System
dBm	dB relative to 1 milli watt
DSP	Digital Signal Processing
EEPROM	Electrical Erasable Programmable Read-Only Memory
ESD	Electrostatic Discharge
FPCB	Flexible Printed Circuit Board
GMSK	Gaussian Minimum Shift Keying
GPIO	General Purpose Interface Bus
GSM	Global System for Mobile Communications
IPUI	International Portable User Identity
IF	Intermediate Frequency
LCD	Liquid Crystal Display
LDO	Low Drop Output
LED	Light Emitting Diode
OPLL	Offset Phase Locked Loop

1. INTRODUCTION

PAM	Power Amplifier Module
PCB	Printed Circuit Board
PGA	Programmable Gain Amplifier
PLL	Phase Locked Loop
PSTN	Public Switched Telephone Network
RF	Radio Frequency
RLR	Receiving Loudness Rating
RMS	Root Mean Square
RTC	Real Time Clock
SAW	Surface Acoustic Wave
SIM	Subscriber Identity Module
SLR	Sending Loudness Rating
SRAM	Static Random Access Memory
PSRAM	Pseudo SRAM
STMR	Side Tone Masking Rating
TA	Travel Adapter
TDD	Time Division Duplex
TDMA	Time Division Multiple Access
UART	Universal Asynchronous Receiver/Transmitter
VCO	Voltage Controlled Oscillator
VCTCXO	Voltage Control Temperature Compensated Crystal Oscillator
WAP	Wireless Application Protocol

2. PERFORMANCE

2.1 Product Name

GD880 : WCDMA900/2100+EGSM/GSM850/DCS/PCS

(HSDPA 7.2Mbps / GPRS Class 12 / EDGE Class 12)

2.2 Supporting Standard

Item	Feature	Comment
Supporting Standard	WCDMA(FDD1,8)/EGSM/GSM850/DCS1800/PCS1900 with seamless handover Phase 2+(include AMR) SIM Toolkit: Class 1, 2, 3, C-E	
Frequency Range	WCDMA(FDD1) TX : 1920 – 1980 MHz WCDMA(FDD1) RX : 2110 – 2170 MHz WCDMA(FDD8) TX : 880 – 915 MHz WCDMA(FDD8) RX : 925 – 960 MHz EGSM TX: 880 – 915 MHz EGSM RX: 925 – 960 MHz GSM850 TX: 824 – 849 MHz GSM850 RX: 869 – 894 MHz DCS1800 TX : 1710 – 1785 MHz DCS1800 RX: 1805 – 1880 MHz PCS1900 TX: 1850 – 1910 MHz PCS1900 RX: 1930 – 1990 MHz	
Application Standard	WAP 2.0, JAVA 2.0	

2.3 Main Parts : GSM Solution

Item	Part Name	Comment
Digital Baseband	MSM7227 : Qualcomm	
Analog Baseband	PM7540 : Qualcomm	
RF Chip	RTR6285 : Qualcomm	

2. PERFORMANCE

2.4HW Features

Item		Feature	Comment
Form Factor		Bar type	
Battery		1) Capacity Standard : Li-Ion, 900mAh	
		2) Packing Type : Soft Pack	
Size		Standard : 102 x 47.6 x 10.6 mm	
Weight		99g	With Battery
Volume		TBD	
PCB		All Layer (10) , 0.75t	
Stand by time		2G Up to 320 hrs	@ Paging Period 5 (2G)
		3G Up to 300 hrs	@ DRX 7 (3G)
Charging time		3 hrs	@ Power Off / 900mAh
Talk time		2G Up to 180 mins	@ Power Level 5 (2G)
		3G Up to 225 mins	@ Tx = 12dBm (3G)
RX sensitivity		WCDMA(FDD1) : -106.7 dBm WCDMA(FDD8) : -103.7 dBm EGSM : -105 dBm GSM850 : -105 dBm DCS 1800 : -105 dBm PCS 1900 : -105 dBm	
TX output power	WCDMA/ GSM/ GPRS	WCDMA : 24dBm/3.84MHz,+1/-3dBm EGSM : 33dBm GSM850 : 33 dBm DCS 1800 : 30 dBm PCS 1900 : 30 dBm	Class3(WCDMA) Class4 (EGSM) Class4 (GSM850) Class1 (PCS) Class1 (DCS)
	EDGE	GSM 900 : 27 dBm DCS 1800 : 26 dBm PCS 1900 : 26 dBm	E2 (GSM900) E2 (PCS) E2 (DCS)
GPRS compatibility		GPRS Class 12	
EDGE compatibility		EDGE Class 12	
SIM card type		Plug-In SIM 3V /1.8V	
Display		Main LCD TFT Main LCD(3.2', 480 x 854)	
Built-in Camera		5M CMOS Camera 1.3M VGA CMOS Camera	
Status Indicator		No	
Keypad		No	

2. PERFORMANCE

ANT	Main : Internal Fixed Type	
System connector	5 Pin	
Ear Phone Jack	3.5Phi, 4 Pole, Stereo	
PC synchronization	Yes	
Memory	NAND Flash : 4Gbit SDRAM : 4Gbit	
Speech coding	FR, EFR, HR, AMR	
Data & Fax	Built in Data & Fax support	
Vibrator	Built in Vibrator	
Blue Tooth	V2.1+ EDR	
MIDI(for Buzzer Function)	SW Decoded 72Poly	
Music Player	MP3/AAC/AAC+	
Video Player	MPEG4, H.263,	
Camcorder	MPEG4, H.263,	
Voice Recording	Yes	
Speaker Phone mode Support	Yes	
Travel Adapter	Yes	
CDROM	Yes	
Stereo Headset	Yes	
Data Cable	Yes	
T-Flash (External Memory)	Yes	

2. PERFORMANCE

2.5SW Features

Item	Feature	Comment
RSSI	0 ~ 7 Levels	
Battery Charging	0 ~ 3 Levels	
Key Volume	0 ~ 7 Level	
Audio Volume	1 ~ 20 Level	
Time / Date Display	Yes	
Multi-Language	Yes	English/Spanish/Portuguese/Korean
Quick Access Mode	Dialing / Call Log / Contact / Menu / Message / Camera / Favorite	
PC Sync	Schedule / Phonebook / MEMO / SMS / Download (Photo, file)	
Speed Dial	Yes (1~9)	Voice mail center -> 1 key
Profile	Yes	
CLIP / CLIR	Yes	
Phone Book	Name + 5 Numbers + 1 Memo + 2 e-mail + 3 Group Select + Picture + Ringtone + Anniversary day	Total 1000 Member
Last Dial Number	Yes	Total Call DB Max 100 LDN (SIM) N/A
Last Received Number	Yes	Total Call DB Max 100 LDN (SIM) N/A
Last Missed Number	Yes	Total Call DB Max 100 LDN (SIM) N/A
Search by Number / Name	Name and Number	
Group	30	
Fixed Dial Number	Yes	
Service Dial Number	Yes	
Own Number	Yes	
Voice Memo	Yes	
Call Reminder	Yes	
Network Selection	Automatic	
Mute	Yes	
Call Divert	Yes	
Call Barring	Yes	
Call Charge (AoC)	Yes	
Call Duration	Yes	
SMS (EMS)	1000 (10)	EMS : Release4 (Except Text align)
SMS Over GPRS	Yes	
EMS Melody / Picture Send / Receive / Save	Yes Receive only	
MMS MPEG4 Send / Receive / Save	Yes Yes	

2. PERFORMANCE

Long Message	MAX 1000 Characters	SMS 7pages
Cell Broadcast	Yes	
Download	Over the WAP	
Game	Yes	
Calendar	Yes	
Memo	50	
World Clock	Yes	
Unit Convert	Currency/Surface/Length/Volume/Weight/Temperature/Velocity	
Stop Watch	Yes	
Wall Paper	Yes	
WAP Browser	Over WAP 2.0	Obigo
Download Melody / Wallpaper	Yes	Over WAP
SIM Lock	Yes	Operator Dependent
SIM Toolkit	Class 1, 2, 3, C-E	
MMS	Yes	Obigo +LG MMS Client
EONS	Yes	
CPHS	Yes	V4.2
ENS	No	
Camera	Yes	5M AF / Digital Zoom : x16
JAVA	Yes	CLDC V1.1 / MIDP V2.0 Download Over WAP
Voice Dial	No	
IrDa	No	
Bluetooth	Yes	V2.0 HSP, HFP, OPP, FTP(server), BPP, A2DP, AVRCP
FM radio	Yes	
GPRS	Yes	Class 12
EDGE	Yes	Class 12
Hold / Retrieve	Yes	
Conference Call	Yes	Max. 6
DTMF	Yes	
Memo pad	Yes	
TTY	No	
AMR	Yes	
SyncML	Yes	
IM	No	
Email	Yes	

2. PERFORMANCE

2.6 HW SPEC.

1) GSM transceiver specification

Item	Specification
Phase Error	Rms : 5° Peak : 20 °
Frequency Error	GSM : 0.1 ppm DCS/PCS : 0.1 ppm
EMC(Radiated Spurious Emission Disturbance)	GSM/DCS : < -28dBm
Transmitter Output power and Burst Timing	GSM : 5dBm – 33dBm ± 3dB DCS/PCS : 0dBm – 30dBm ± 3dB
Burst Timing	<3.69us
Spectrum due to modulation out to less than 1800kHz offset	200kHz : -36dBm 600kHz : -51dBm/-56dBm
Spectrum due to modulation out to larger than 1800kHz offset to the edge of the transmit band	GSM : 1800-3000kHz : < -63dBc(-46dBm) 3000kHz-6000kHz : < -65dBc(-46dBm) 6000kHz < : < -71dBc(-46dBm) DCS : 1800-3000kHz : < -65dBc(-51dBm) 6000kHz < : < -73dBc(-51dBm)
Spectrum due to switching transient	400kHz : -19dBm/-22dBm(5/0), -23dBm 600kHz : -21dBm/-24dBm(5/0), -26dBm
Reference Sensitivity – TCH/FS	Class II(RBER) : -105dBm(2.439%)
Usable receiver input level range	0.012(-15 - -40dBm)
Intermodulation rejection – Speech channels	± 800kHz, ± 1600kHz : -98dBm/-96dBm (2.439%)
AM Suppression – GSM : -31dBm – DCS : -29dBm	-98dBm/-96dBm (2.439%)
Timing Advance	± 0.5T

2. PERFORMANCE

2) WCDMA transmitter specification

Item	Specification
Transmit Frequency	Band1 : 1920 MHz ~ 1980 MHz Band8 : 880MHz~915MHz
Maximum Output Power	+24 dBm / 3.84 MHz, +1 / -3 dB
Frequency Error	within ± 0.1 PPM
Open Loop Power Control	Normal Conditions : within ± 9 dB, Extreme Conditions : within ± 12 dB
Minimum Transmit Power	< -50 dBm / 3.84 MHz
Occupied Bandwidth	< 5 MHz at 3.84 Mcps (99% of power)
Adjacent Channel Leakage Power Ratio (ACLR)	> 33 dB @ ± 5 MHz, > 43 dB @ ± 10 MHz
Spurious Emissions $ f-f_c > 12.5$ MHz	< -36 dBm / 1 kHz RW @ $9 \text{ kHz} \leq f < 150 \text{ kHz}$ < -36 dBm / 10 kHz RW @ $150 \text{ kHz} \leq f < 30 \text{ MHz}$ < -36 dBm / 100 kHz RW @ $30 \text{ MHz} \leq f < 1 \text{ GHz}$ < -30 dBm / 1 MHz RW @ $1 \text{ GHz} \leq f < 12.75 \text{ GHz}$ < -60 dBm / 3.84 MHz RW @ $869 \text{ MHz} \leq f \leq 894 \text{ MHz}$ < -60 dBm / 3.84 MHz RW @ $1930 \text{ MHz} \leq f \leq 1900 \text{ MHz}$ < -60 dBm / 3.84 MHz RW @ $2110 \text{ MHz} \leq f \leq 2155 \text{ MHz}$ < -67 dBm / 100 kHz RW @ $925 \text{ MHz} \leq f \leq 935 \text{ MHz}$ < -79 dBm / 100 kHz RW @ $935 \text{ MHz} < f \leq 960 \text{ GHz}$ < -71 dBm / 100 kHz RW @ $1805 \text{ MHz} \leq f \leq 1880 \text{ MHz}$ < -41 dBm / 300 kHz RW @ $1884.5 \text{ MHz} < f < 1919.6 \text{ MHz}$
Transmit Intermodulation	< -31 dBc @ 5 MHz & < -41 dBc @ 10 MHz when Interference CW Signal Level = -40 dBc
Error Vector Magnitude	< 17.5 %, when Pout \geq -20 dBm
Peak Code Domain Error	< -15 dB at Pout \geq -20 dBm

2. PERFORMANCE

3) WCDMA receiver specification

Item	Specification																			
Receive Frequency	Band1 : 2110 ~ 2170 MHz Band8 : 925~960MHz																			
Reference Sensitivity Level	Band1 : BER < 0.001 when \hat{I}_{or} = -106.7 dBm / 3.84 MHz Band8 : BER < 0.001 when \hat{I}_{or} = -103.7 dBm / 3.84 MHz																			
Maximum Input Level	BER < 0.001 when \hat{I}_{or} = -25 dBm / 3.84 MHz																			
Adjacent Channel Selectivity (ACS)	ACS > 33 dB where BER < 0.001 when \hat{I}_{or} = -92.7 dBm / 3.84 MHz & I_{oac} = -52 dBm / 3.84 MHz @ ± 5 MHz																			
Blocking Characteristic	BER < 0.001 when \hat{I}_{or} = -103.7 dBm / 3.84 MHz & $I_{blocking}$ = -56 dBm / 3.84 MHz @ $F_{uw}(\text{offset}) = \pm 10$ MHz or $I_{blocking}$ = -44 dBm / 3.84 MHz @ $F_{uw}(\text{offset}) = \pm 15$ MHz																			
Spurious Response	BER < 0.001 when \hat{I}_{or} = -103.7 dBm / 3.84 MHz & $I_{blocking}$ = -44 dBm																			
Intermodulation	BER < 0.001 when \hat{I}_{or} = -103.7 dBm / 3.84 MHz & I_{ouw1} = -46 dBm @ $F_{uw1}(\text{offset}) = \pm 10$ MHz & I_{ouw2} = -46 dBm / 3.84 MHz @ $F_{uw2}(\text{offset}) = \pm 20$ MHz																			
Spurious Emissions	< -57 dBm / 100 kHz BW @ $9 \text{ kHz} \leq f < 1 \text{ GHz}$ < -47 dBm / 1 MHz BW @ $1 \text{ GHz} \leq f \leq 12.75 \text{ GHz}$																			
Inner Loop Power Control In Uplink	Adjust output(TPC command) <table><tr><td>cmd</td><td>1dB</td><td>2dB</td><td>3dB</td></tr><tr><td>+1</td><td>+0.5/1.5</td><td>+1/3</td><td>+1.5/4</td></tr><tr><td>0</td><td>-0.5/+0.5</td><td>-0.5/+0.5</td><td>-0.5/+0.5</td></tr><tr><td>-1</td><td>-0.5/-1.5</td><td>-1/-3</td><td>-1.5/-4</td></tr></table> group(10equal command group) <table><tr><td>+1</td><td>+8/+12</td><td>+16/+24</td></tr></table>	cmd	1dB	2dB	3dB	+1	+0.5/1.5	+1/3	+1.5/4	0	-0.5/+0.5	-0.5/+0.5	-0.5/+0.5	-1	-0.5/-1.5	-1/-3	-1.5/-4	+1	+8/+12	+16/+24
cmd	1dB	2dB	3dB																	
+1	+0.5/1.5	+1/3	+1.5/4																	
0	-0.5/+0.5	-0.5/+0.5	-0.5/+0.5																	
-1	-0.5/-1.5	-1/-3	-1.5/-4																	
+1	+8/+12	+16/+24																		

4) HSDPA transmitter specification

Item	Specification				
Transmit Frequency	Band1 : 1920 MHz ~ 1980 MHz Band8 : 880MHz~915 MHz				
Maximum Output Power	Sub-Test 1=1/15, 2=12/15 21~25dBm / 3.84 MHz 3=13/15 4=15/8 20~25dBm / 3.84 MHz 5=15/7 6=15/0 19~25dBm / 3.84 MHz				
HS-DPCCH	Sub-test in table C.10.1.4	Power step	Power step slot boundary	Power step size, P [dB]	Transmitter power step tolerance [dB]
	5	1	Start of Ack/Nack	6	+/- 2.3
		2	Start of CQI	1	+/- 0.6
		3	Middle of CQI	0	+/- 0.6
		4	End of CQI	5	+/- 2.3
Spectrum Emission Mask	Sub-Test : 1=1/15, 2=12/15, 3=13/15, 4=15/8, 5=15/7, 6=15/0				
	Frequency offset from carrier Δf		Minimum requirement		Measurement Bandwidth
	2.5 ~ 3.5 MHz		-35-15 $\times(\Delta f$ -2.5)dBc		30 kHz
	3.5 ~ 7.5 MHz		-35-1 $\times(\Delta f$ -3.5)dBc		1 MHz
	7.5 ~ 8.5 MHz		-35-10 $\times(\Delta f$ -7.5)dBc		1 MHz
	8.5 ~ 12.5 MHz		-49dBc		1 MHz
Adjacent Channel Leakage Power Ratio (ACLR)	Sub-Test : 1=1/15, 2=12/15, 3=13/15, 4=15/8, 5=15/7, 6=15/0 > 33 dB @ ± 5 MHz > 43 dB @ ± 10 MHz				
Error Vector Magnitude	< 17.5 %, when Pout \geq -20 dBm				

2. PERFORMANCE

5) HSDPA receiver specification

Item	Specification
Receive Frequency	Band1 : 2110 ~ 2170 MHz Band8 : 925 ~ 960Hz
Maximum Input Level (BLER or R), 16QAM Only	Sub-Test : 1=1/15, 2=12/15, 3=13/15, 4=15/8, 5=15/7, 6=15/0 BLER < 10% or R >= 700kbps

6) WLAN 802.11b transceiver specification

Item	Specification
Transmit Frequency	2400 MHz ~ 2483.5 MHz (CH1~CH13)
Tx Power Level	≤ 20dBm under (Europe), ≤ 30dBm under (USA)
Frequency Tolerance	within ±25 PPM
Chip clock Frequency Tolerance	within ±25 PPM
Spectrum Mask	≤ -30 @ $f_c - 22\text{MHz} < f < f_c - 11\text{MHz}$ and $f_c + 11\text{MHz} < f < f_c + 22\text{MHz}$ ≤ -50 @ $f < f_c - 22\text{MHz}$ and $f > f_c + 22\text{MHz}$
Power ramp on/off time	≤ 2us
Carrier Suppression	≤ -15dB
Modulation Accuracy (Peak EVM)	≤ 35%
Spurious Emissions	< -36 dBm @ 30MHz ~ 1GHz < -30 dBm above @ 1GHz ~ 12.75GHz < -47 dBm @ 1.8GHz ~ 1.9GHz < -47 dBm @ 5.15GHz ~ 5.3GHz
Rx Min input Sensitivity	≤ -76dBm(1Mbps,2Mbps,5.5Mbps,11Mbps) @ FER ≤ 8%
Rx Max input Sensitivity	≥ -10dBm(1Mbps,2Mbps,5.5Mbps,11Mbps) @ FER ≤ 8%
Rx Adjacent Channel Rejection	≥ 35dB @FER ≤ 8%, interference input signal -70dBm@ $f_c \pm 25\text{MHz}$ (11Mbps)

7) WLAN 802.11g transceiver specification

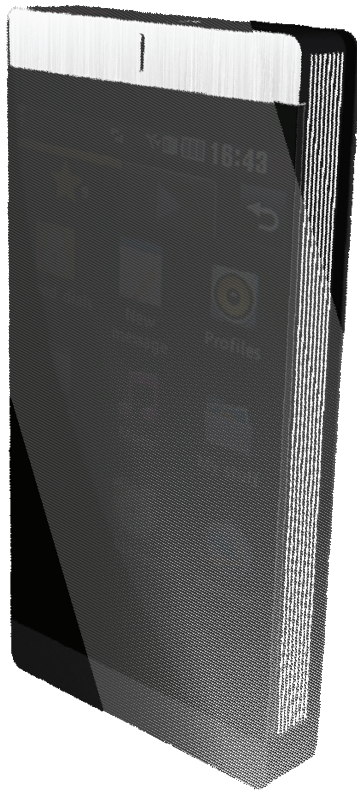
Item	Specification
Transmit Frequency	2400 MHz ~ 2483.5 MHz (CH1~CH13)
Tx Power Level	≤ 20dBm under (Europe), ≤ 30dBm under (USA)
Frequency Tolerance	within ±25 PPM
Chip clock Frequency Tolerance	within ±25 PPM
Spectrum Mask	≤ -20 @ ±11MHz offset (9MHz ~ 11MHz) ≤ -28 @ ±20MHz offset (11MHz ~ 20MHz) ≤ -40 @ ±30MHz offset (20MHz ~ 30MHz)
Transmitter constellation error (rms EVM)	≤ -5dB
Spurious Emissions	< -36 dBm @ 30MHz ~ 1GHz < -30 dBm above @ 1GHz ~ 12.75GHz < -47 dBm @ 1.8GHz ~ 1.9GHz < -47 dBm @ 5.15GHz ~ 5.3GHz
Rx Min input Sensitivity	PER ≤ 10% -82dBm@6Mbps, -81dBm@9Mbps, -79dBm@12Mbps -77dBm@18Mbps, -74dBm@24Mbps, -70dBm@36Mbps -66dBm@48Mbps, -65dBm@54Mbps
Rx Max input Sensitivity	≥ -20dBm(6,9,12,18,24,36,48,54Mbps) @ PER ≤ 10%
Rx Adjacent Channel Rejection	PER ≤ 10%, ACR ≥ 16dB@6Mbps, ACR ≥ 15dB@9Mbps, ACR ≥ 13dB@12Mbps, ACR ≥ 11dB@18Mbps, ACR ≥ 8dB@24Mbps, ACR ≥ 4dB@36Mbps ACR ≥ 0dB@48Mbps, ACR ≥ -1dB@54Mbps ※ ACR shall be measured by setting the desired signal's strength 3 dB above the rate-dependent sensitivity specified in min input sensitivity

8) GPS receiver specification

Item	Specification
Receive Frequency	1574.42 MHz ~ 1576.42 MHz
Minimum Sensitivity	1 satellite ≥ -142dBm, 7 satellites ≥ -147dBm at coarse time aiding

2. PERFORMANCE

2.7 GD880 Figures



3. TECHNICAL BRIEF

3.1 Digital Baseband(DBB/MSM7227)

3.1.1 General Description

A. Features(MSM7227)

WCDMA Rel '99 plus HSDPA and HSUPA

GSM/GPRS/EDGE

High-performance ARM1136JF-S™ application processor at up to 600 MHz; QDSP5000™ at 320 MHz

High-performance ARM926EJ-S™ modem processor at up to 400 MHz; QDSP4000™ at 122.88 MHz

Java® hardware acceleration for faster Java-based games and other applets

Support for Bluetooth® 2.1 EDR via an external Bluetooth System-on-Chip (SoC)

High-speed, serial mobile display digital interface (MDDI) that optimizes the interconnection cost between the MSM device and the LCD panel

Receive diversity support for WCDMA mode, thereby providing improved capacity and data throughput

USB 2.0 compliant high-speed USB core with limited OTG capabilities

Integrated high-speed USB PHY

Integrated wideband stereo codec for digital audio applications

Direct interface to digital camera module with video front-end (VFE) image processing

GPS position location capabilities

Vocoder support (GSM-HR, FR, EFR, AMR, and AMR-WB/+)

Advanced 12 × 12 × 1.05 mm, 0.4 mm pitch, 560 NSP

High-performance ARM1136JF-S 600 MHz application processor

Industry standard ARM926EJ-S 400 MHz embedded microprocessor subsystem

QDSP5000 320 MHz application digital signal processing (ADSP)

QDSP4000 122.88 MHz modem digital signal processing (MDSP)

256 kB internal memory (IMEM) for graphics, internal functions, DSP, etc.

Dual-memory buses separating the high-speed memory subsystem (EBI1) from low-speed peripherals (EBI2) such as LCD panels

Enhanced EBI1 memory support: 200 MHz bus clock for DDR SDRAM

EBI2 support

All modes and data rates for WCDMA frequency division duplex (FDD), with the following restrictions

Full SF range support from 4 to 256

SMS (CS and PS)

PS data rate – 384 kb/s DL/384 kb/s UL

CS data rate – 64 kb/s DL/64 kb/s UL

AMR (all rates)

3. TECHNICAL BRIEF

3.2 Hardware Architecture

MINI Block Diagram

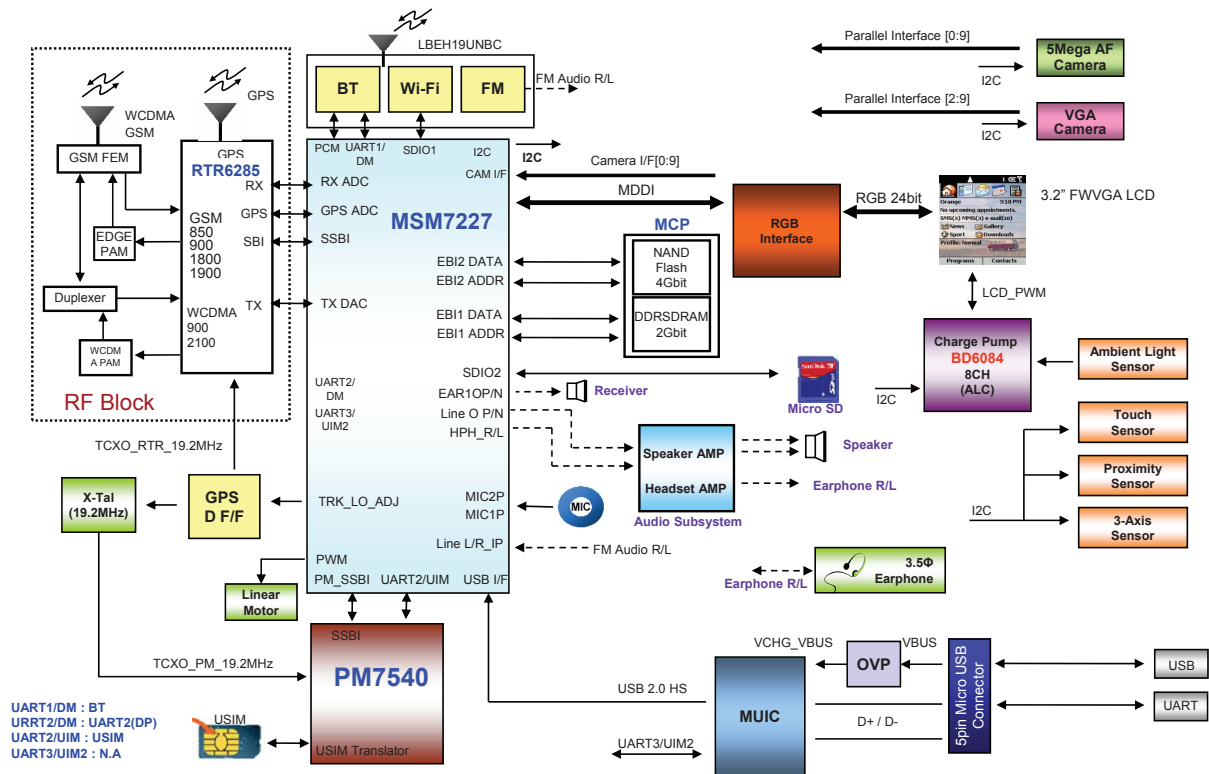


Figure. Simplified Block Diagram of System

POWER Block

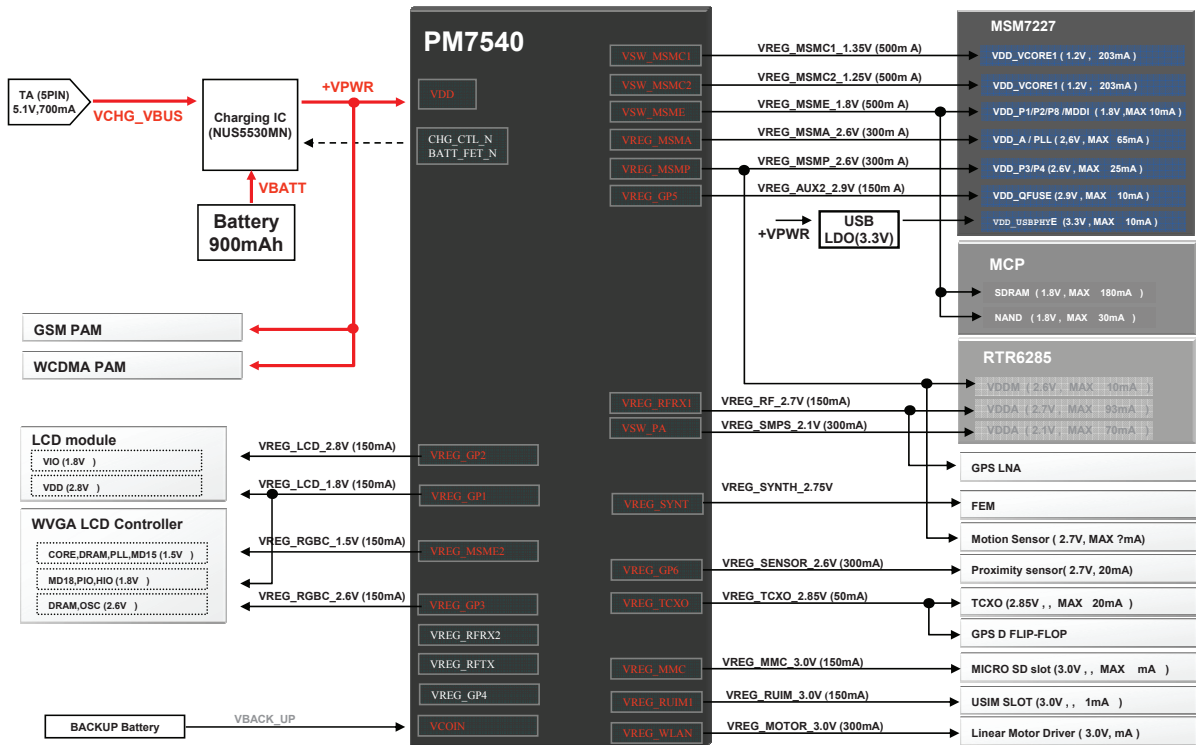


Figure. Simplified Block Diagram of System

3. TECHNICAL BRIEF

POWER Block

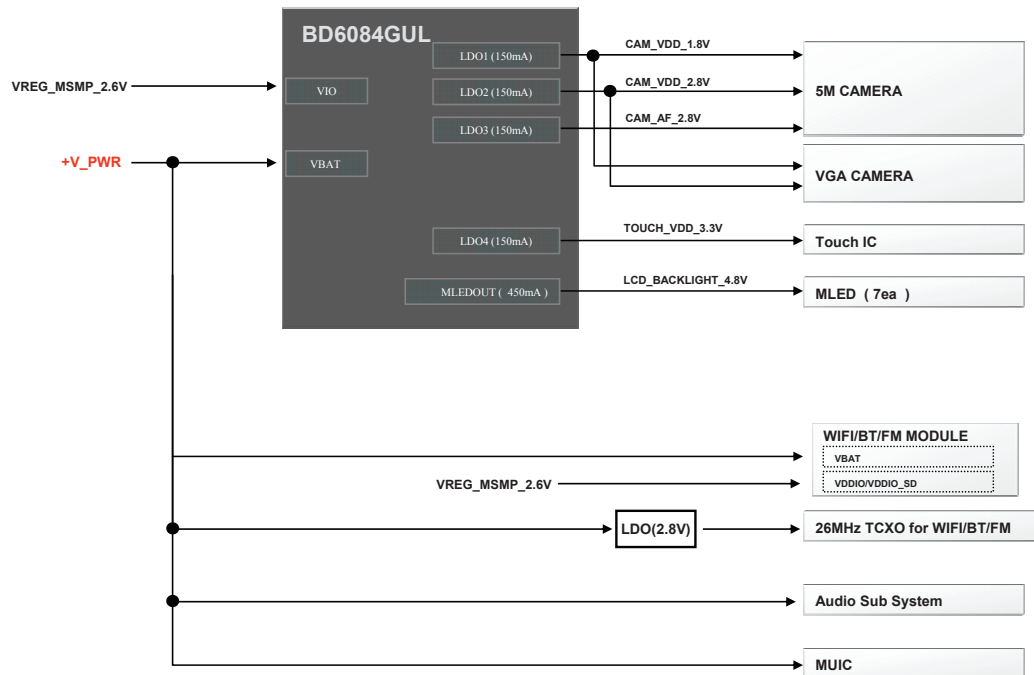


Figure. Simplified Block Diagram of System

3.3 Subsystem(MSM7227)

3.3.1 Architecture and baseband processing features

High-performance ARM1136JF-S 600 MHz application processor:

- ARM® architecture v6
- 32 kB instruction and 32 kB data cache
- 256 kB ARM11™ L2 cache
- 4 kB level-one tightly-coupled memory (TCM)
- 8-stage pipeline, branch prediction with return stack
- Supports the ARM and Thumb instruction sets, and Jazelle™ technology to enable direct execution of Java byte-codes
- Low-interrupt latency

Industry standard ARM926EJ-S 400 MHz embedded microprocessor subsystem

- 16 kB instruction and 16 kB data cache
- ARM version 5TEJ instructions
- Higher-performance five-stage pipeline, Harvard cached architecture
- Higher internal CPU clock rate with on-chip cache
- Internal watchdog and sleep timers

QDSP5000 320 MHz application digital signal processing (ADSP)

- 512 kB L2 cache

QDSP4000 122.88 MHz modem digital signal processing (MDSP)

3.3.2 Memory support features

256 kB internal memory (IMEM) for graphics, internal functions, DSP, etc.

Dual-memory buses separating the high-speed memory subsystem (EBI1) from low-speed peripherals (EBI2) such as LCD panels

Enhanced EBI1 memory support: 200 MHz bus clock for DDR SDRAM

EBI2 support:

- 1.8 or 2.6 V memory interface support
- NAND/OneNAND™ flash memory interface
- Boot from NAND/OneNAND
- LCD and Universal Broadcast Modem™ (UBM™) support

3. TECHNICAL BRIEF

3.3.3 Air interface features

3.3.3.1 WCDMA R99

The MSM7227 device supports release 99, June 2004 of the WCDMA FDD standard, including the following features.

All modes and data rates for WCDMA frequency division duplex (FDD), with the following restrictions:

- The downlink supports the following specifications.
 - : Up to four physical channels, including the broadcast channel (BCH), if present
 - : Up to three dedicated physical channels (DPCHs)
 - : Spreading factor (SF) range support from 4 to 256
 - : Support for the following transmit diversity modes:
 - => Space-time transmit diversity (STTD)
 - => Time-switched transmit diversity (TSTD)
 - => Closed-loop feedback transmit diversity (CLTD)
- The uplink supports the following specifications.
 - : The uplink provides the following UE support.
 - => One physical channel, eight TrCH, and 16 TrBks starting at any frame boundary
 - => A maximum data rate of 384 kb/s

Full SF range support from 4 to 256

SMS (CS and PS)

PS data rate – 384 kb/s DL/384 kb/s UL

CS data rate – 64 kb/s DL/64 kb/s UL

AMR (all rates)

3.3.3.2 HSDPA

The MSM7227 device supports the release 5, December 2004 standard for HSDPA, including the following features.

The HSDPA enables PS data speeds up to 7.2 Mb/s on the downlink.

HS-DSCH (HS-SCCH, HS-PDSCH, and HS-DPCCH) and the R99 transport channels, as defined in the 3GPP specifications

A maximum of four simultaneous HS-SCCH channels, as defined in the 3GPP specifications

A maximum of 10 HS-PDSCH channels, both QPSK and 16 QAM modulation and UE category 6 in software release 2.0, and category 8 in software release 3.0

CQI and ACK/NACK on the HS-DPCCH channel, as defined in the 3GPP specifications

All incremental redundancy versions for HARQ, as defined in the 3GPP specifications

Can switch between HS-PDSCH and DPCH channel resources as directed by the network

Can be configured to support any of the two power classes 3 or 4, as defined in the 3GPP R5 specifications (25.101)

Network activation of compressed mode by SF/2 or HLS on the DPCH for conducting inter-frequency or inter-RAT measurements when the HS-DSCH is active

STTD on both associated DPCH and HS-DSCH simultaneously

CLTD mode 1 on the DPCH when the HS-PDSCH is active

STTD on HS-SCCH when either STTD or CLTD mode 1 is configured on the associated DPCH

TFC selection limitation on the UL factoring in transmissions on the HS-DPCCH, as required in TS 25.133

3.3.3.3 HSUPA

The MSM7227 device supports the release 6, March 2006 standard for HSUPA, including the following features.

E-DCH data rates of up to 5.76 Mb/s for 2 ms TTI (UE category 6) uplink

N E-AGCH, E-RGCH and E-HICH channels for downlink, as defined in the 3GPP specifications. E-RGCH and E-HICH supports serving and non-serving radio links, with up to four radio links in the E-DCH active set.

STTD on all HSUPA downlink channels

CLTD mode 1 on HS-PDSCH and DPCH along with HSUPA channels

All incremental redundancy versions for HARQ and maximum number of HARQ retransmissions, as defined in 3GPP specifications

E-DCH channel on the uplink, as defined in the 3GPP specifications, with support for up to four E-DPDCH channels HSUPA channels simultaneously with R99 and HSDPA channels, as defined in the 3GPP specifications

Switch between HSUPA channels and DPCH channel resources as directed by the network

Handover using compressed mode with simultaneous E-DCH and HS-DSCH interactive/background and streaming QoS classes

3. TECHNICAL BRIEF

3.3.3.4 GSM R99

The following GSM modes and data rates are supported by the MSM7227 hardware. Support modes conform to release '99 specification of subfeatures.

Voice features

- FR, EFR, AMR, HR, A5/1 and A5/2 ciphering

Circuit-switched data features

- 9.6 k, 14.4 k, Fax
- Transparent and non-transparent modes for CS data and fax
- No subrates are supported.

3.3.3.5 GPRS

Packet-switched data (GPRS)

DTM (simple class A) operation

Multislot class 12 data services

CS schemes — CS1, CS2, CS3, and CS4

GEA1, GEA2, and GEA3 ciphering

Maximum of four Rx timeslots per frame

3.3.3.6 EDGE

EDGE E2 power class for 8 PSK

DTM (simple class A), multislot class 12

Downlink coding schemes — CS 1-4, MCS 1-9

Uplink coding schemes — CS 1-4, MCS 1-9

BEP reporting

SRB loopback and test mode B

8-bit and 11-bit RACH

PBCCH support

One-phase/two-phase access procedures

Link adaptation and IR

NACC, extended UL TBF

3.3.3.7 GPS position location

Next-generation gpsOne® solution with an enhanced GPS engine

Enhanced filtering software optimizes GPS accuracy and availability.

Full integration with Windows Mobile®, Java, and BREW®-based development environments

MS-assisted, MS-based, MS-assisted/hybrid, and standalone GPS modes

gpsOneXTRA Assistance™ for enhanced standalone GPS performance

Support for UMTS control plane, GSM control plane, and OMA SUPL 1.0 user plane assisted-GPS protocols

3.3.4 Supported multimedia features

3.3.4.1 General multimedia

Additional general-purpose MIPS

- QDSP5000 aDSP at 320 MHz
- Dedicated hardware accelerators and compression engines

Improved Java, BREW, and game performance

3.3.4.2 Camera interface

High-quality digital camera processing, supporting CCD or CMOS image sensors up to 8-megapixels

Up to 12-bit data width with timing synchronization via discrete or embedded signals

YUV (4:2:2) or Bayer data types

A multitude of image signal processing capabilities

- Black level correction, bad pixel correction, and color correction
- Radial-based LROC, zoom, FOV crop, and frame drop
- Statistical techniques such as pre-zoom statistic gathering, AE/AWB, and histogram
- Gain adjustments including 4-channel and white balance
- Chroma subsampling, high-quality downscaler, and Bayer noise filter

3. TECHNICAL BRIEF

3.3.4.3 Video

Dedicated support for market-leading codecs such as MPEG-4, H.263, H.264, and Windows Media®

- Integrated stereo wideband codec for music/digital clips
- CMX® – 128 polyphonic MIDI wavetable synthesizer
- Audio codecs: MP3, AMR-WB/+, AAC, AAC+™, EAAC+, and Windows Media

3.3.4.4 Graphics support

3D graphics core - Up to WVGA (800 × 480) display support

256 kB internal memory

3D support: OpenGL ES 1.1, 2.0, JSR 297, D3DM

2D support: OpenVG, SVG, JSR226, GDI, Ddraw

Performance:

- 27 megapixel triangles/s (peak 3D triangle rate)
- 166 megapixel/s peak 3D pixel draw rate
- 1660 megapixel/s effective 3D pixel rate
- 532 megapixel/s peak 3D pixel reject rate
- 207 megapixel four-component-vector instructions/s
- 166 megapixel/s 2D/OVG pixel draw rate

3.3.4.5 Audio processing

Integrated wideband stereo codec

- 16-bit DAC with typical 88 dB dynamic range
- Sampling rates up to 48 kHz on the speaker path and 48 kHz on the microphone path
- Supports summing of an external device's stereo single-ended analog signal
- Supports summing of an I2S digital audio signal
- Supports headset switch press detection

Enhanced acoustic echo cancellation for full-duplex calls

PureVoice Audio AGC™

Internal vocoder supporting 13 kb/s PureVoice®

3.3.4.6 LCD controller

Parallel LCD support

RGB888 interface

3.3.5 Supported connectivity features

High-speed USB port with integrated PHY

Four universal asynchronous receiver transmitter (UART) serial ports

- Two high-speed (DM via UART, 4 Mb/s)
- Emergency software download on UART2

Two UIM ports (shared with UART2 and UART3)

- 1.8 V and 3.0 V support; IS-820-C compliant

Four SDIO ports (SD 2.0)

- SD card, mini SD card, micro SD card, and MMC up to 52 MHz
- Boot from SD

Display support

- High-speed serial MDDI port that optimizes the interconnection cost between the MSM device and LCD panel
- MDDI V1.0 interface that supports up to 384 Mb/s link rate
- Dual displays
 - : Primary => LCD controller (LCDC) or MDDI; FWVGA resolution; 16-bit, 18-bit, and 24-bit true color depth; on-screen buffer support
 - : Secondary => EBI2 interface; up to WQVGA resolution; 16-bit, 18-bit, and 24-bit true color depth
- Mobile display processor: MDP v.3

Touchscreen support

AUX_PCM for Bluetooth, SDAC, and SADC support

Inter-integrated circuit (I2C) interface for peripheral devices

Bluetooth 2.1 + EDR (external BTS4025™ IC)

Transport stream interface (TSIF) and the ability to support broadcast technologies, including the Qualcomm MediaFLO™ technology, DVB-H, ISDB-T, T-DMB, and S-DMB

3. TECHNICAL BRIEF

3.3.6 Configurable GPIO features

133 general-purpose I/O pins

Input configurations: pull-up, pull-down, keeper, or no-pull

Output configurations: programmable drive current

Two groupings: non-ETM (group 1) and ETM (group 2)

- Group 2 GPIO functions are emulated by off-chip field-programmable gate arrays (FPGAs) in ETM mode, without software knowledge.

Top-level mode multiplexer (TLMM) provides a convenient way to program groups of GPIOs.

3.3.7 Features of internal functions

SecureMSM™ platform secures OMA DRM v2.0 services and e-commerce transactions.

- Robust protection of subsidy locks and phone identifiers such as the IMEI, ESN, and SIMLock
- Enables compliance with CMLA and OMTP TR0 specifications

SecureMSM platform features include:

- Secure boot – protects against reflashing attacks
 - : Ensure device starts with known and trusted software
 - : Data integrity and authenticity of code is verified every time phone starts
- Secure execution environment
 - : Maintains integrity of device at run time
 - : Memory separation keeps secret application data secret and protects applications from attacks.
- Secure file system (SFS)
 - : Provides confidentiality for secret data through AES encryption and a 128-bit fused hardware key
 - : Operations using hardware key are run in on-chip RAM, making observation extremely difficult
 - : Provides integrity protection for non-secret (public) key and certificates

PLLs and clock generation and distribution

- Multiple internal clock regimes
- General-purpose clock, M/N counter, and PDM outputs
- Internal watchdog and sleep timers

Modes and resets

Power optimization

JTAG/ETM

3.3.8 RF and PM interface features

Tx output chain controls

- Multiple UMTS PA on/off and range controls
- GSM PA power control
- 14-bit generic RF controller (GRFC) interface

RTR6285 status and control

- Tx enable and gain control

Rx/Tx analog baseband interfaces

- Dual Rx analog baseband interfaces support UMTS diversity Rx plus S-GPS.
- Tx analog baseband supports all phone transmission modes.

PM7540 status and control

- SSBI
- Interrupt port and other dedicated clock and control signals

TCXO enable and VCTCXO frequency control via PDM waveform

Three housekeeping ADC inputs for monitoring analog sensors

- Selectable reference
- 12-bit resolution, 10-bit accuracy, sampled at TCXO/8 (2.4 MHz)

3.3.9 Package features

560-pin nano-scale package (560 NSP)

12 × 12 × 1.05 mm outline

0.4 mm pitch

Many ground pins for improved electrical grounding, mechanical strength, and thermal continuity

3. TECHNICAL BRIEF

3.4 Power Block

3.4.1 General

MSM7227, included RF, is fully covered by PM7540(Qualcomm PMIC). PM7540 cover the power of MSM7227, MSM memory, RF block, Bluetooth, USIM and TCXO.

Major power components are :

PM7540(U400) : Phone main pmic

BD6083GUL(Sub-pcb, U101) : LCD Backlight charge pump, Cam LDO, Touch LDO

NUS5530(U403) : main power path switch(battery charging circuit)

MAX14528(U404) : OVP(Over voltage protection) IC

3.4.2 PM7540

The PM7540 device (Figure) integrates all wireless handset power management. The power management portion accepts power from all the most common sources – battery, external charger, adapter, coin cell back-up – and generates all the regulated voltages needed to power the appropriate handset electronics. It monitors and controls the power sources, detecting which sources are applied, verifying that they are within acceptable operational limits, and coordinates battery and coin cell recharging while maintaining The handset electronics supply voltages. Eight programmable output voltages are generated using low dropout voltage regulators, all derived from a common trimmed voltage reference.

A dedicated controller manages the TCXO warm-up and signal buffering, and key parameters (under-voltage lockout and crystal oscillator signal presence) are monitored to protect against detrimental conditions.

MSM device controls and statuses the PM7540 IC using Single Serial Bus Interface (SSBI) supplemented by an Interrupt Manager for time-critical information. Another dedicated IC Interface circuit monitors multiple trigger events and controls the power-on sequence.

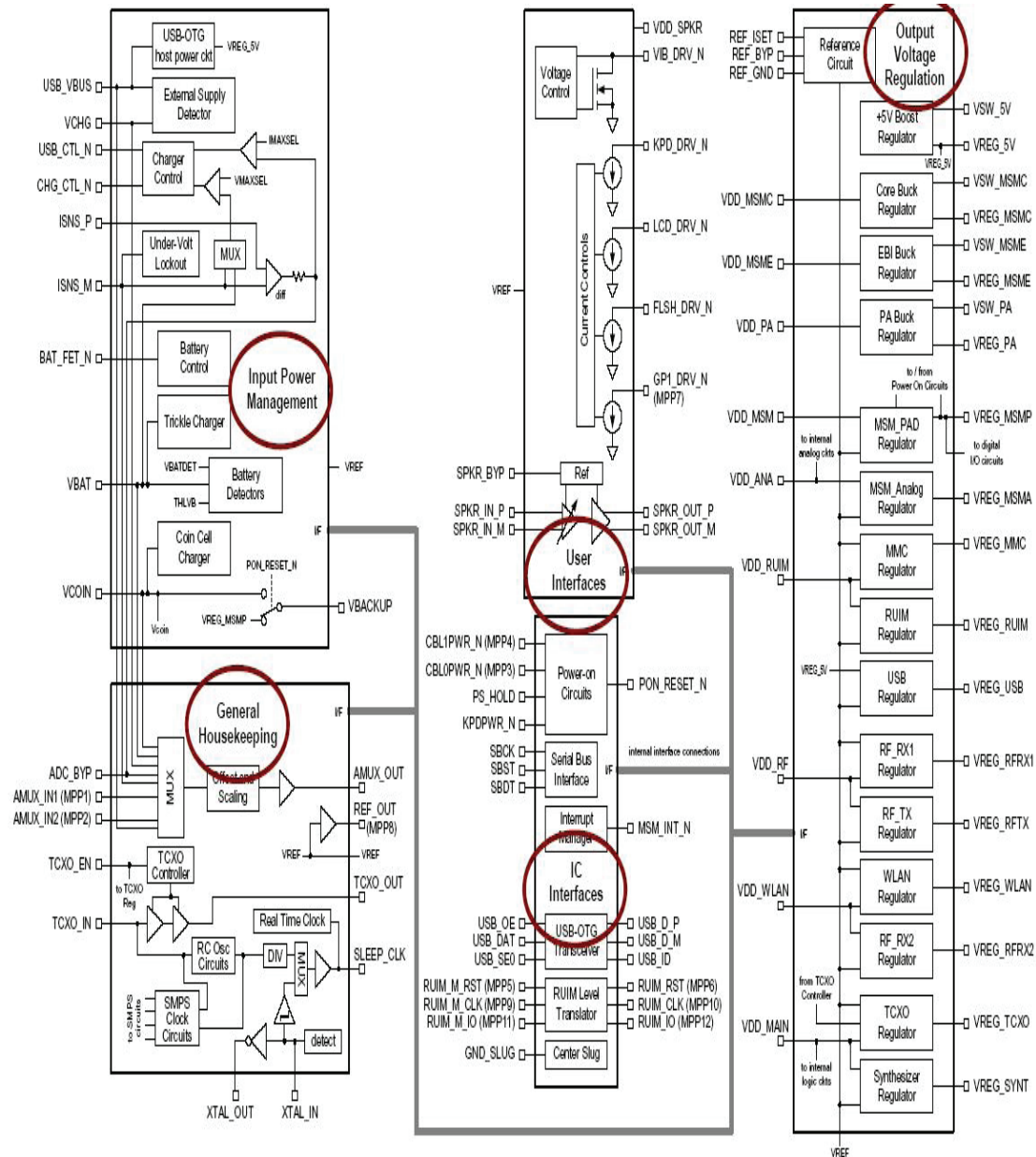
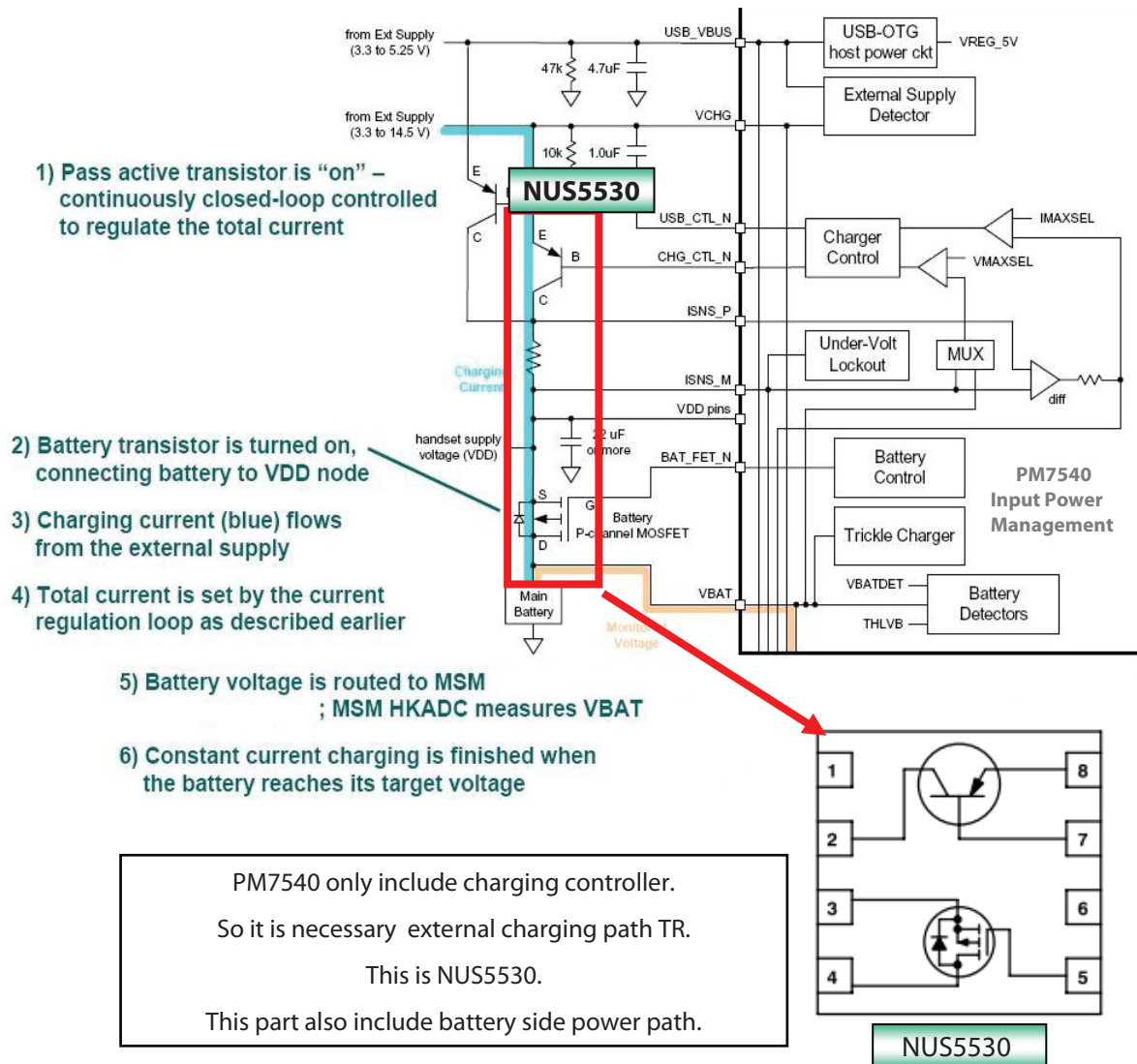


Figure. PM7540 Functional Block Diagram

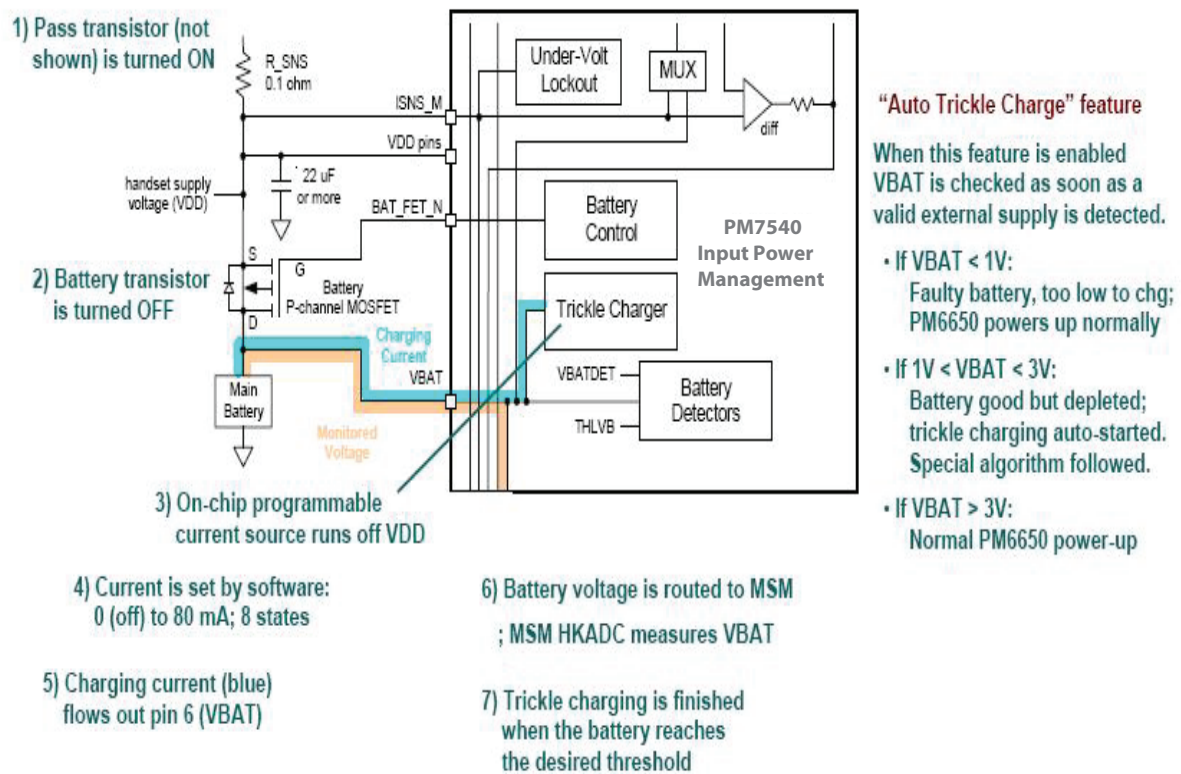
3. TECHNICAL BRIEF

3.4.3 Charging control

A programmable charging block in PM7540 is used for battery charging. It is possible to set limits for the charging current. The external supply typically connects directly to pin (VCHG). The voltage on this pin (VCHG) is monitored by detection circuitry to ascertain whether a valid external supply is applied or not. For additional accuracy or to capture variations over time, this voltage is routed internally to the housekeeping ADC via the analog multiplexer. PM7540 circuits monitor voltages at VCHARGER and ICHARGE pins to determine which supply should be used and when to switch between the two supplies. These pins are connected to the Source (or emitter) and Drain (or collector) contacts of the pass transistor respectively.



Trickle Charging of the main battery, enabled through SBI control and powered from V_{DD} , is provided by the PM7540 IC. The trickle charger is on-chip programmable current source that supplies current from V_{DD} to pin (VBAT). Trickle charging can be used for lithium-ion and nickel-based batteries, with its performance specified below (3.2V). The charging current is set to 80mA.



3. TECHNICAL BRIEF

Constant Current Charging

The PM7540 IC supports constant current charging of the main battery by controlling the charger pass transistor and the battery transistor. The constant current charging continues until the battery reaches its target voltage, 4.2V.

Constant Voltage Charging

Constant voltage charging begins when the battery voltage reaches a target voltage, 4.2V. The end of constant voltage charging is commonly detected 10% of the full charging current.

- Charging Method : CC & CV (Constant Current & Constant Voltage)
- Maximum Charging Voltage : 4.2V
- Maximum Charging Current : 660mA
- Nominal Battery Capacity : 900mAh
- Charging time : Max. 3h 30m
- Full charge indication current (icon stop current) : 50mA
- Cut-off voltage : 3.30V

Battery icon display

Indication	Standby
Bar3	$\geq 3.75 \pm 0.05V$
Bar 3 → 2	$3.75 \pm 0.05V$
Bar 2 → 1	$3.67 \pm 0.05V$
Bar 1 → Blink	$3.6 \pm 0.05V$
Low Voltage, Warning message+ Blinking	$3.6 \pm 0.05V$ (Stand-by) / $3.6 \pm 0.05V$ (Talk) [Interval : 3min(Stand-by) / 1min(Talk)]
Power Off	$3.3 \pm 0.05V$

3.5 External memory interface

A. MSM7227

The MSM7227 device was designed to provide two distinct memory interfaces. EBI1 was targeted for supporting DDR synchronous memory devices. EBI2 was targeted towards supporting slower asynchronous devices such as LCD, NAND flash, SRAM, NOR flash etc. To support the high-bandwidth, high-density, and low-latency requirements of the advanced on-chip applications, the MSM7227 IC has two high-speed, high-performance memory slave interfaces: the external bus interface 1 (EBI1) and the stack memory interface (SMI). To achieve higher bandwidth and better use of the memory device interface, the SMI accepts multiple commands for the external memory device. The SMI interface acts as a slave device to all of the bus masters within the MSM device. The masters arbitrate to gain access to the SMI, and upon obtaining the access, they issue commands to the SMI. The bus masters are connected to the SMI through an advanced extensible interface (AXI) bus bridge (or global interconnect block) and communicate over a 64-bit, non-blocking AXI bus protocol. The AXI bus bridge provides the arbitration logic for all of the bus masters.

- EBI1 Features
 - Support for only low-power memories at 1.8-V I/O power supply voltage
 - AXI bus frequencies up to 133 MHz
 - A 16-bit/32-bit static and dynamic memory interface
- DDR SDRAM interface features include:
 - Supports both 32-bit DDR SDRAM devices, up to 133-MHz bus speed
 - Supports auto precharge and manual precharge
 - Supports partial refresh
 - Separate CKE pin per chip-select to support partial operation mode
 - Idle power down to save idling power consumption
 - EBI2 Features
 - Support for asynchronous FLASH and SRAM(16bit & 8bit).
 - Interface support for byte addressable 16bit devices(UB_N & LB_N signals).
 - 2Mbytes of memory per chip select.
 - Support for 8 bit/16bit wide NAND flash.
 - Support for parallel LCD interfaces, port mapped of memory mapped(8 or 16 bit)
- Multi Chip Package : DDR SDRAM and NAND Flash merged 1 package
- 4G (LB/256Mx16) NAND+4G (DDR400/16Mx4x32*2_2CS_2CKE) SDRAM

Interface Spec				
Part Name	Product Gr	Maker	Operation Voltage (Flash / DRAM)	Speed (Flash / DRAM)
H8B ES0UU0MCR-4EM	NAND	Hynix	1.8V	45ns / 400MHz
	SDRAM		1.8V	

Table#1. External memory interface for GD880

3. TECHNICAL BRIEF

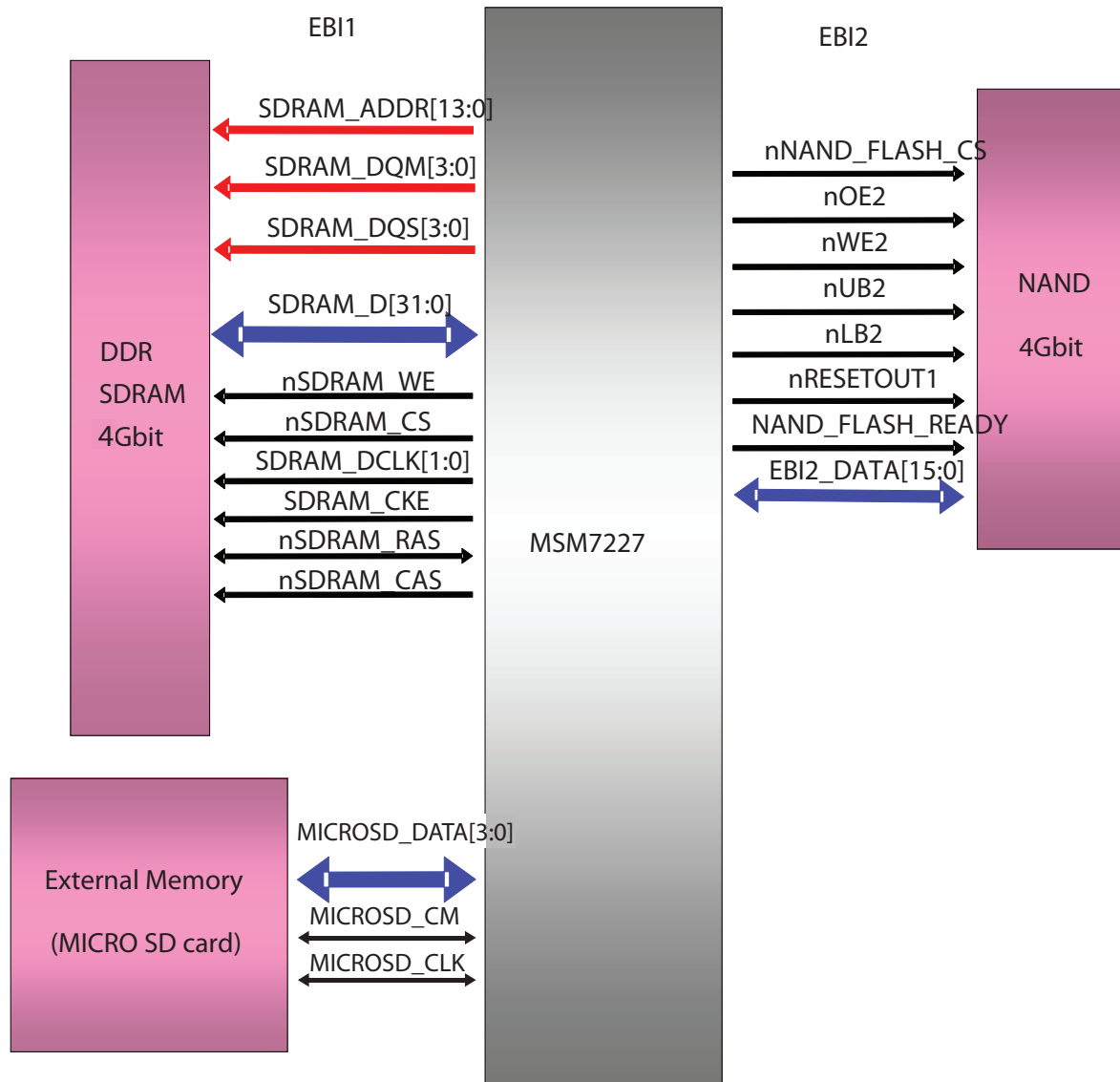


Figure. Simplified Block Diagram of Memory Interface

3.6 H/W Sub System

3.6.1 RF Interface

A. RTR6285 (WCDMA_Tx, GSM_Tx/Rx)

MSM7227 controls RF part(RTR6285) using these signals.

- SSB DT : SSBI I/F signals for control Sub-chipset
- TX_ON : Power AMP on RF part
- RX0_I/Q_M/P, TX_I/Q_M/P : I/Q for T/Rx of RF
- TX_AGC_ADJ : control the gain of the Tx signal prior to the power amplifier
- DAC_REF : Reference input to the MSM Tx data DACs

B. the others

- TRK_LO_ADJ: TCXO(19.2M) Control
- PA_ON0/PA_RANGE0/GPIB22 : WCDMA(2100, 900) TX Power Amp Enable
- ANT_SEL[0-3], GPIO 72 ~75: Ant Switch Module Mode Selection(WCDMA,GSM Tx/Rx,DCS-PCS Tx/Rx)
- GSM_PA_BAND: GSM/DCS-PCS Band Selection of Power Amp
- GSM_PA_RAMP: Power Amp Gain Control of APC_IC
- GSM_PA_EN: Power Amp Gain Control Enable of APC_IC

C. ALM2412 (A-GPS LNA)

* GPS_LNA_EN: GPS LNA Enable Signal (GPS LNA Shutdown)

3. TECHNICAL BRIEF

D. LBEH19UNBC (BT / WiFi module)

1. WiFi

- * WLAN_CMD: WLAN SDIO Command Line.
- * WLAN_CLK: WLAN SDIO Clock Input.
- * WLAN_SDIO[3:0]: WLAN SDIO Data Line.
- * WLAN_RESET_N: Low asserting reset for WLAN core.
- * WLAN_HOST_WAKEUP: WL_HOST_WAKE signal output.

2. BT

- * BT_UART_RXD: Bluetooth UART Serial Input.
- * BT_UART_RTS: Bluetooth UART Request to Send. Active-low request.
- * BT_UART_CTS: Bluetooth UART Clear to Send. Active-low clear.
- * BT_UART_TXD: Bluetooth UART Serial Output.
- * BT_PCM_CLK: BT PCM clock, can be PCM-master (output) or PCM-slave (input).
- * BT_PCM_DIN: BT PCM data input.
- * BT_PCM_SYNC: BT PCM sync signal, can be PCM-master (output) or PCM-slave (input).
- * BT_PCM_DOUT: BT PCM data output.
- * BT_WAKEUP: BT Wakeup Input.
- * BT_HOST_WAKEUP: BT Host Wakeup Output
- * BT_RESET_N: Low asserting reset for BT core.

3. Common

- * REG_ON: If low the internal regulators will be disabled.
- * SLEEP_CLK: LPO clock (32.768kHz) input. Used for low-power mode timing.
- * CLK_IN: Crystal amplifier input or frequency reference input.
- * CLK_REQ: Crystal Circuit / Reference Clock Enable (active-high)

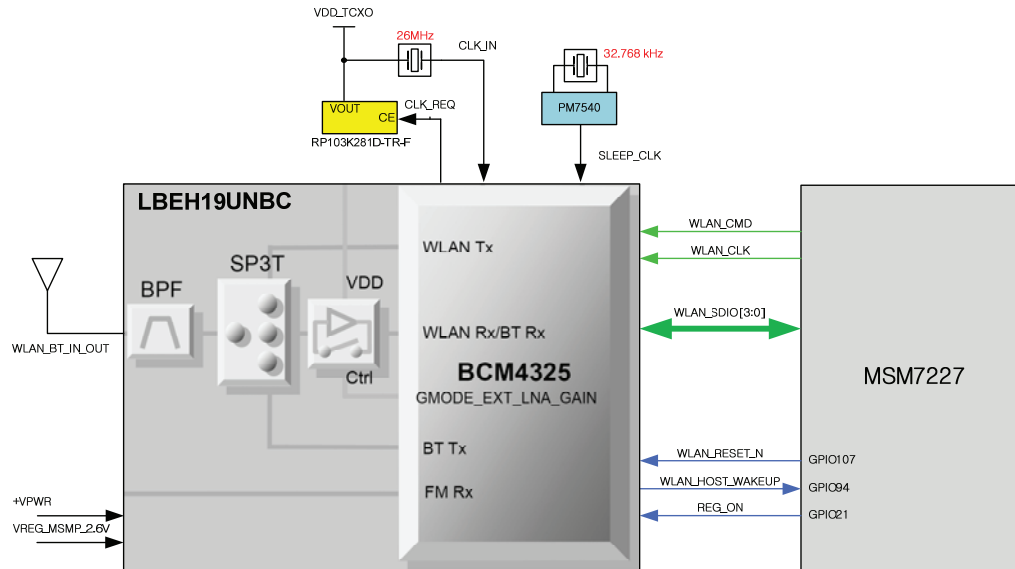


Figure. Block Diagram of WiFi Interface

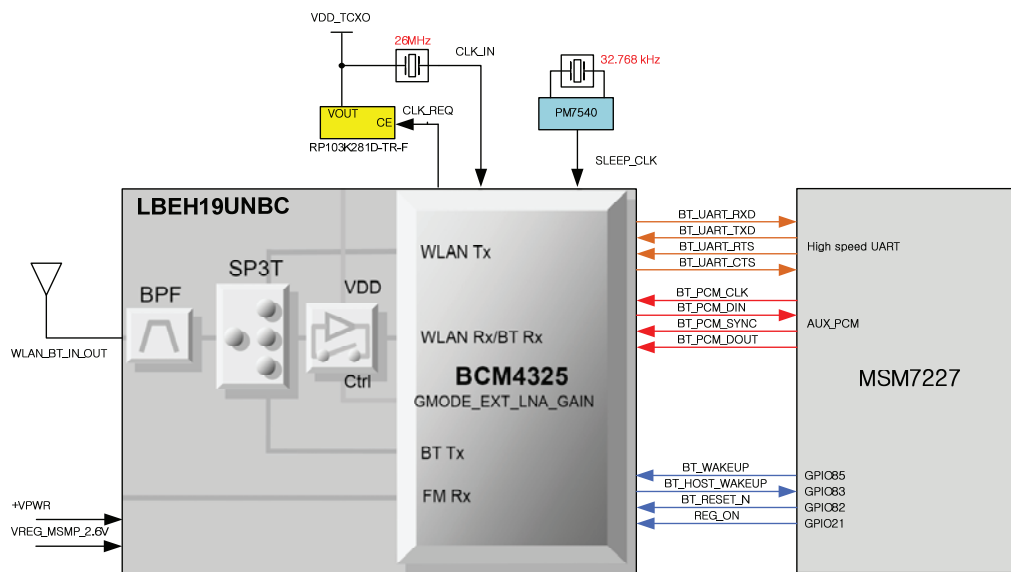


Figure. Block Diagram of BT Interface

E. FM Radio interface

- FM_ANT : FM RF input.
- SLEEP CLK : External reference oscillator input. (32.768KHz)
- FM_AUDIO_R : Right audio line output – digital input data.
- FM_AUDIO_L : Left audio line output – digital frame synchronization.

3. TECHNICAL BRIEF

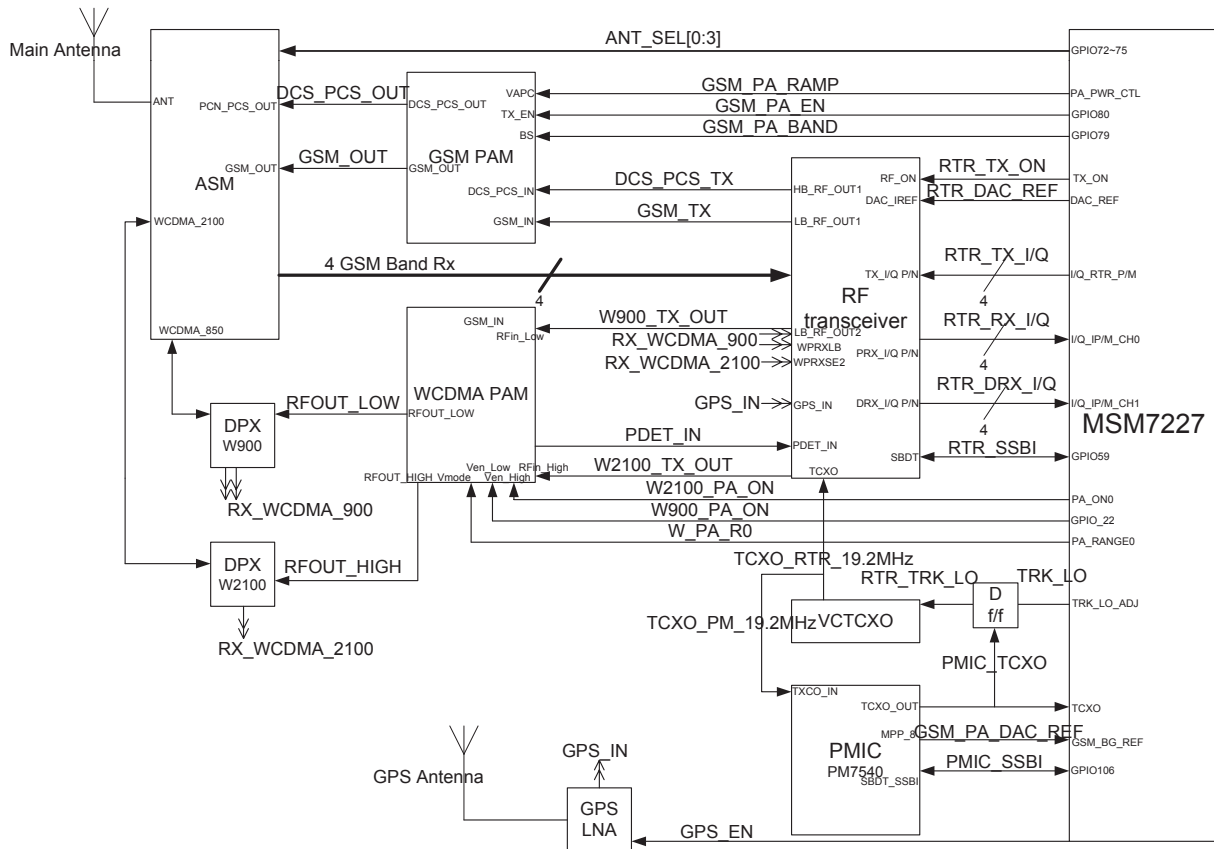


Figure. Block Diagram of RF Interface

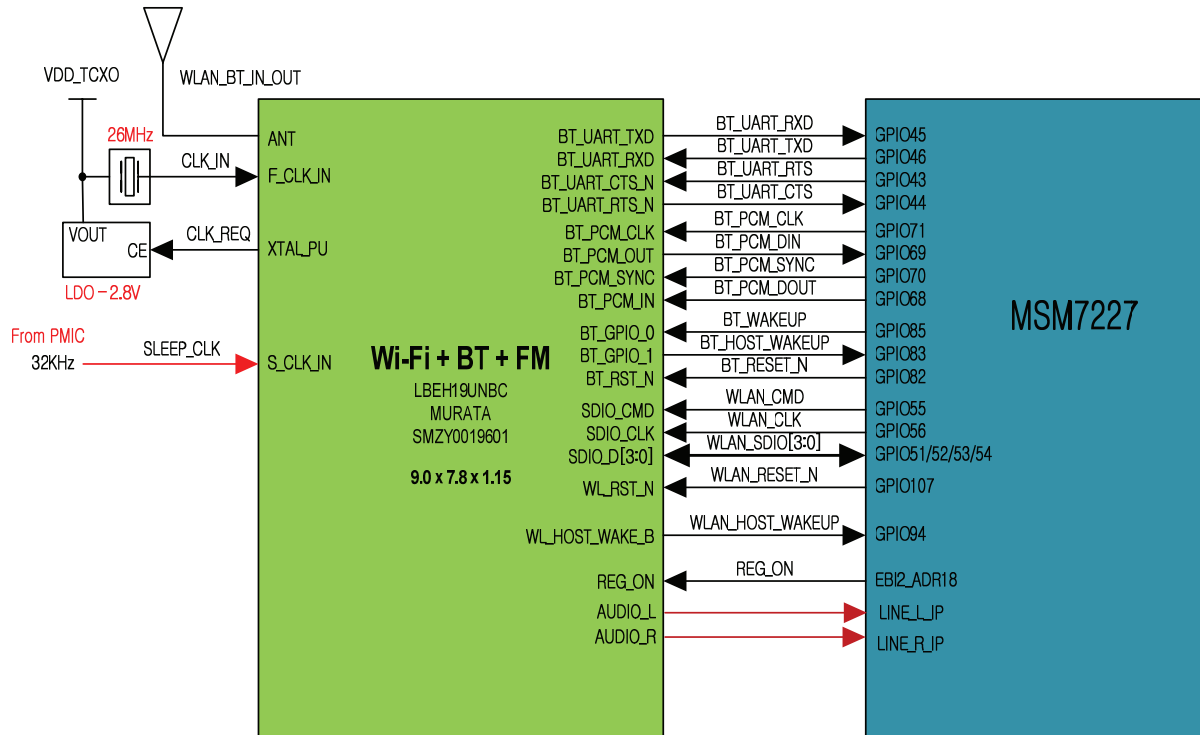


Figure. Block Diagram of RF Interface

3. TECHNICAL BRIEF

3.6.2 MSM Sub System

3.6.2.1 USIM Interface

SIM interface scheme is shown in Figure.

And, there control signals are followed

- USIM_CLK: USIM Clock
- USIM_Reset: USIM Reset
- USIM_Data: USIM Data T/Rx

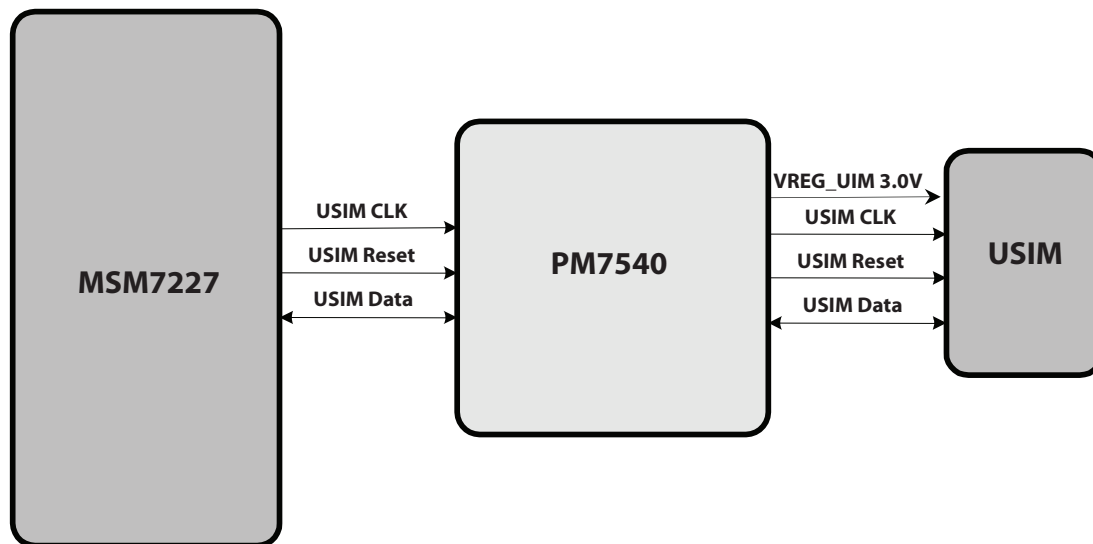


Figure. SIM Interface

3.6.2.2 UART Interface

UART signals are connected to MSM GPIO through IO connector with 115200 bps speed.

GPIO_Map	Name	Note
GPIO_86	UART3_RX	Data_Rx
GPIO_87	UART3_TX	Data_Tx

Table. UART Interface

3.6.2.3 HS-USB

The universal serial bus (USB) is an interconnection standard widely supported by the electronic industry. The USB2.0 spec defines data rates as low-speed (1.5 Mbps), full-speed (12Mbps) and hi-speed (480 Mbps). When two devices are connected via a USB interface, one of the devices must act as a host, and the other device must act as a peripheral. The host is responsible for initiating and controlling traffic on the bus. The USB specification requires personal computers (PCs) to act as hosts, and other devices such as printers, keyboards, mice, etc. to act as peripherals. The OTG supplement creates a new class of devices called OTG devices. OTG devices can act as either hosts or peripherals, depending upon how they are connected and/or used.

The MSM7227 device contains a new USB high-speed function that is based on an embedded UTMI+ core with a UTMI+ low pin interface (ULPI) compatible port. The MSM device's ULPI interface connects to an external ULPI PHY chip to complete the design. The ULPI core embedded in the MSM along with the PM7540 IC and a USB high-speed PHY IC provide support for the high-speed interface.

Name	Note
USBH_CLK	Input clock from TCXO

Table. HSUSB Signal Interface

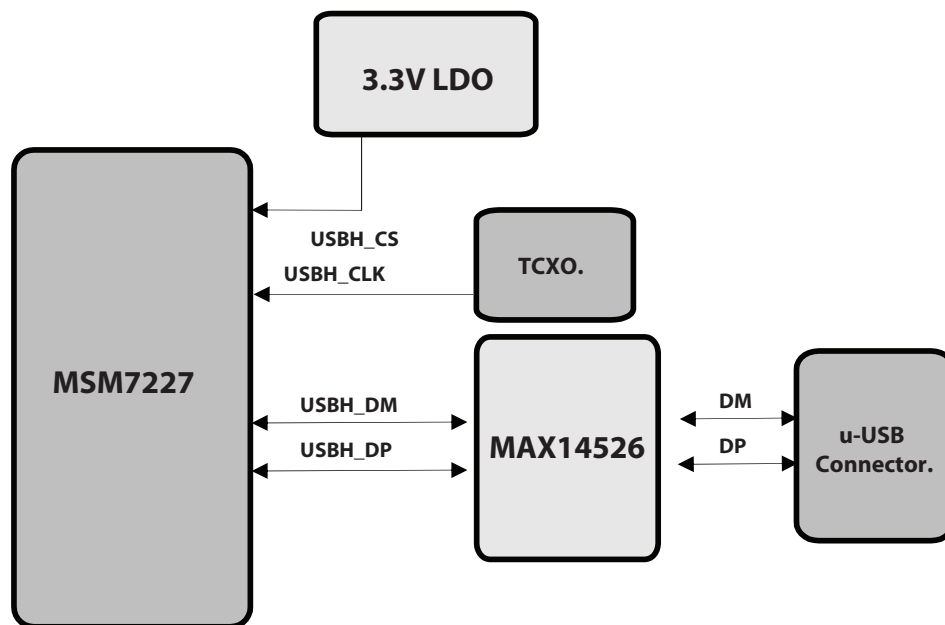


Figure. USB block(MSM7227 Side & MAX14526 Side)

3. TECHNICAL BRIEF

3.6.3 Side Key

There are 4 main key buttons that are controlled by MSM7227. Refer to the Side Key circuit. 'Power Button' Key is connected to PMIC(PM7540:KPD_PWR_N).

	KEY_COL[0]	KEY_COL[1]
KEY_ROW[0]	FOCUS	VOL_DOWN
KEY_ROW[1]	SHUTTER	VOL_UP

Table. Key Matrix Mapping Table

POWER ON

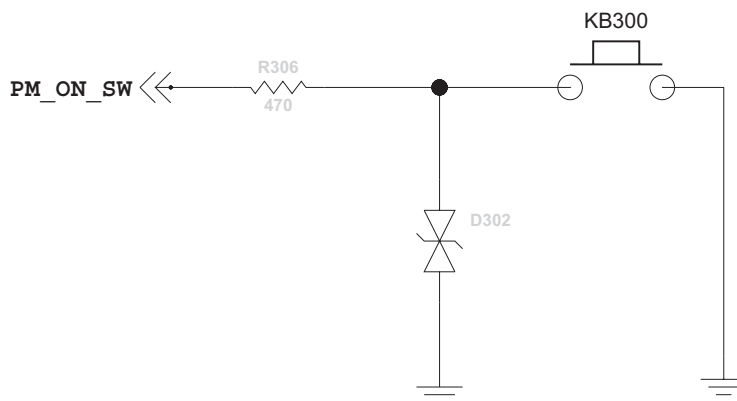


Figure. Power ON / OFF & Suspend Button Key circuit



Figure. Volume Key Circuit

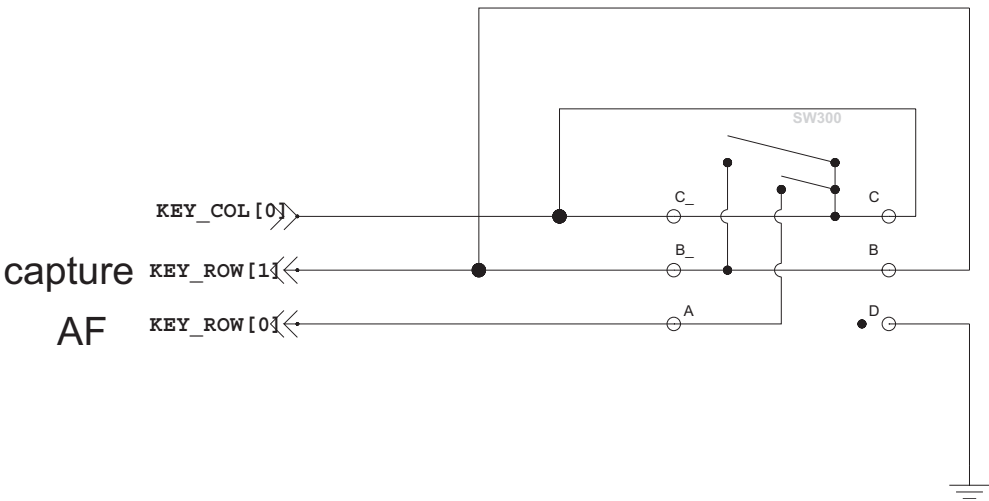


Figure. Camera Key Circuit

3. TECHNICAL BRIEF

3.6.4 Touch Interface

In GD880 touch screen sensor is an optically clear, solid state, high resolution capacitive touch solution that enables precise and advanced finger-based input for portable electronic devices.

Touch screen module is a glass ClearPad sensor with an attached flexible PCB with control electronic components. There is a cover lens to protect the sensor assembly. The communication protocol to host is RMI over I2C.

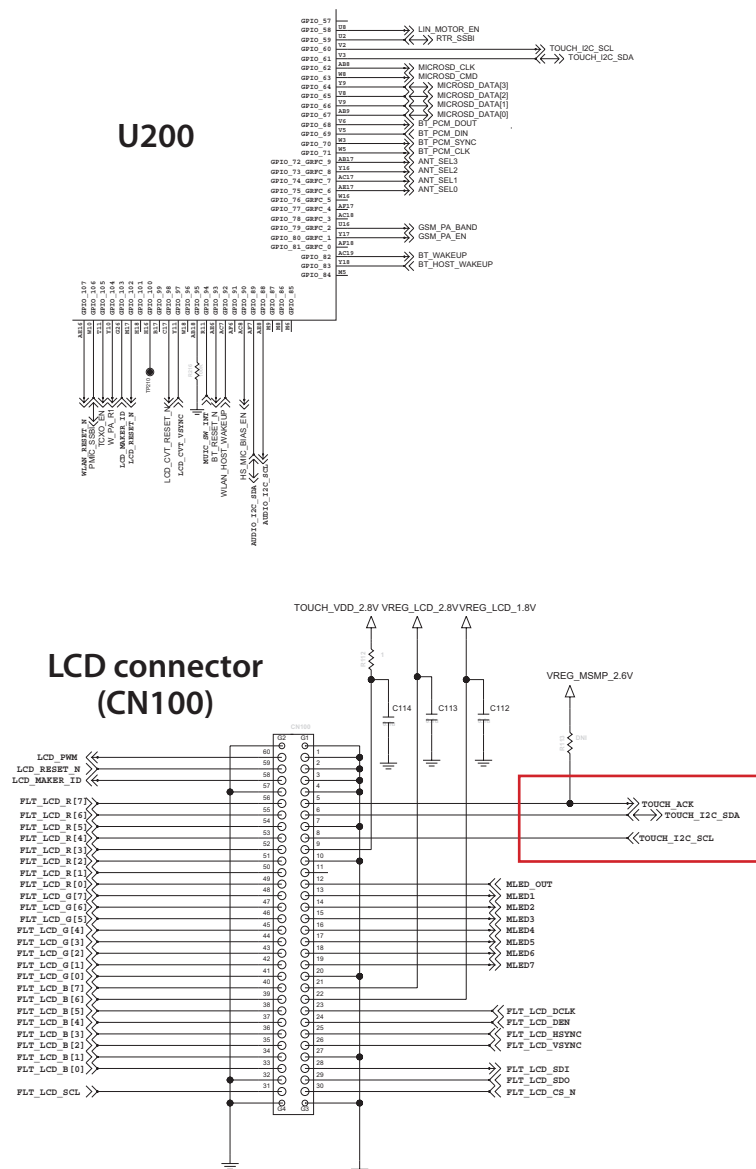


Figure. Touch Sensor Schematic

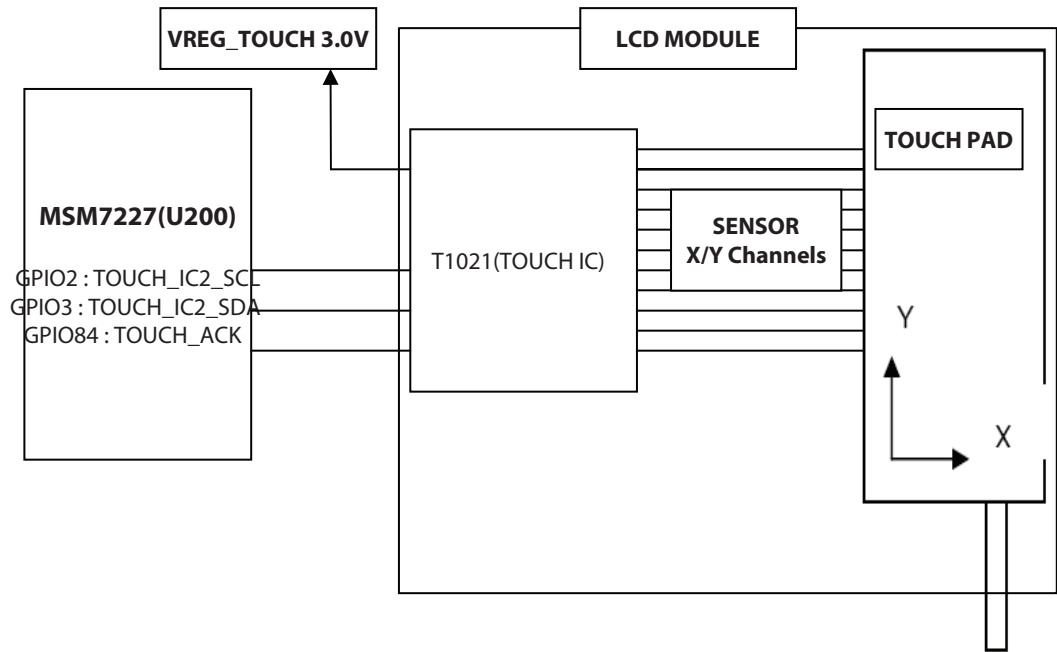


Figure. Touch Sensor Block Diagram

3.7.1 Overview of Audio & Sound & BT path



3.7.2 Audio signal processing & interface

3.7.2.1 MSM7227 audio interface

The MSM7227 audio front end comprises the stereo wideband codec, PCM interface, and additional DSP audio processing.

The stereo wideband codec allows the MSM7227 device to support stereo music/ringer melody applications in addition to the 8 kHz voice band applications on the forward link. In the audio transmit path, the device operates as 13-bit linear converter with software-selectable 8 kHz and 16 kHz sampling rate. In the audio receive path, the device operates as a software-selectable 13-bit or 16-bit linear converter with software-selectable 8 kHz, 16 kHz, 22.05 kHz, 24 kHz, 32 kHz, 44.1 kHz, or 48 kHz sampling rate. Through software, the Rx path can be configured as either a mono or stereo output.

New to the MSM7227 device is a transmit (Tx) ADC path that now supports stereo wideband sampling.

The integrated codec contains all of the required conversion and amplification stages for the audio front end. The codec operates as a 13-bit linear codec with the transmit (Tx) and receive (Rx) filters designed to meet ITU-T G.712 requirements. The codec includes a programmable side tone path for summing a portion of the Tx audio into the Rx path. An on-chip voltage/current reference is provided to generate the precise voltages and currents required by the codec. This circuit requires a single capacitor of 0.1 μ F to be connected between the CCOMP and GND pins. The on-chip voltage reference also provides a microphone bias voltage required for electret condenser microphones typically used in handset applications. The MICBIAS output pin is designed to provide 1.8 V DC while delivering as much as 1 mA of current. Audio decoder summing and headset switch detection are included.

The codec interface includes the amplification stages for both the microphone and earphone. On the transmit (Tx) path, the interface supports two differential microphone inputs, a differential auxiliary input, and a stereo line input. On the receive (Rx) path the interface supports one differential earphone output, a stereo single-ended headphone output, one differential auxiliary output, and stereo single-ended line outputs.

The codec is configured by the codec SBI registers. The codec interface is shown in Figure.

Also part of the audio front end is the PCM interface. The PCM interface allows for an external codec to be used instead of the internal codec. This interface can be used in I2S mode which will allow for an external stereo DAC to be used.

Finally, the audio front end includes additional DSP audio processing that does gains, filtering and other audio processing.

The DSP audio processing is configured through the QDSP5000 command types and is not directly controlled by the microprocessor.

3. TECHNICAL BRIEF

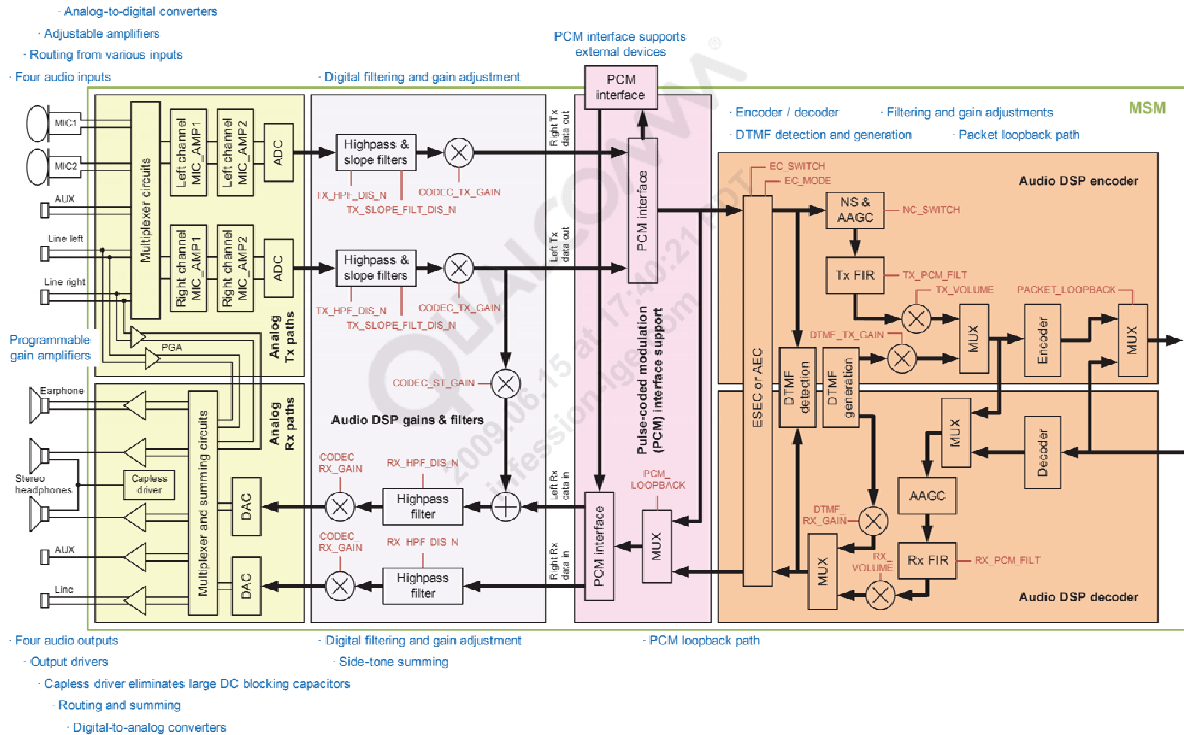


Figure. Detailed diagram of MSM7227 audio interface

3.7.2.2 MAX9877 audio interface

The MAX9877 combines a high-efficiency Class D audio power amplifier with a stereo Class AB capacitorless DirectDrive® headphone amplifier. Maxim's 3rd generation, filterless Class D amplifier with active emissions limiting technology provides Class AB performance with Class D efficiency.

The MAX9877 delivers up to 725mW from a 3.7V supply into an 8Ω load with 87% efficiency to extend battery life. The filterless modulation scheme combined with active emissions limiting circuitry and spread-spectrum modulation greatly reduces EMI while eliminating the need for output filtering used in traditional Class D devices.

The stereo Class AB headphone amplifier in the MAX9877 uses Maxim's patented DirectDrive architecture, that produces a ground-referenced output from a single supply, eliminating the need for large DC-blocking capacitors, saving cost, space, and component height.

The device utilizes a user-defined input architecture, three preamplifier gain settings, an input mixer, volume control, comprehensive click-and-pop suppression, and I2C control. A bypass mode feature disables the integrated Class D amplifier and utilizes an internal DPST switch to allow an external amplifier to drive the speaker that is connected at the outputs of the MAX9877.

The MAX9877 is available in a thermally efficient, space-saving 20-bump WLP package.

3. TECHNICAL BRIEF

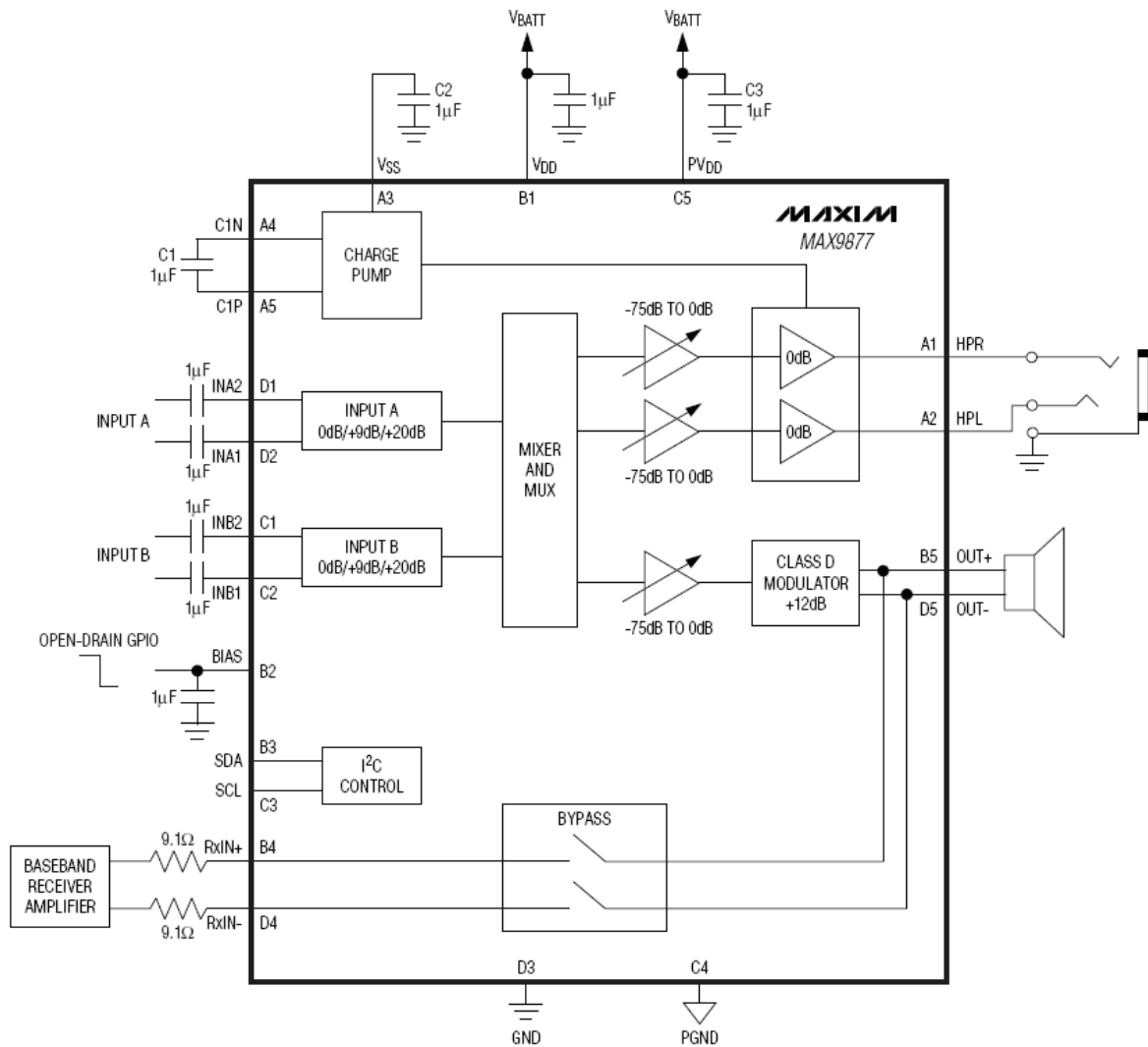
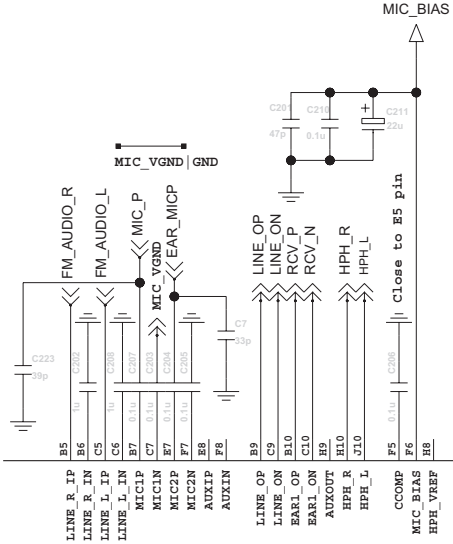
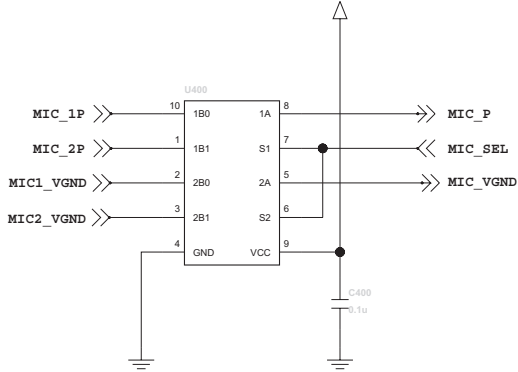
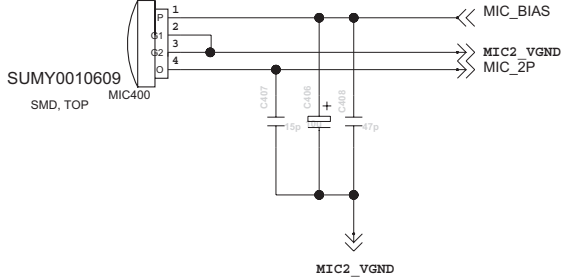
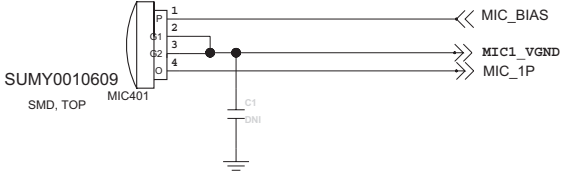


Figure. Detailed diagram of MAX9877 audio interface

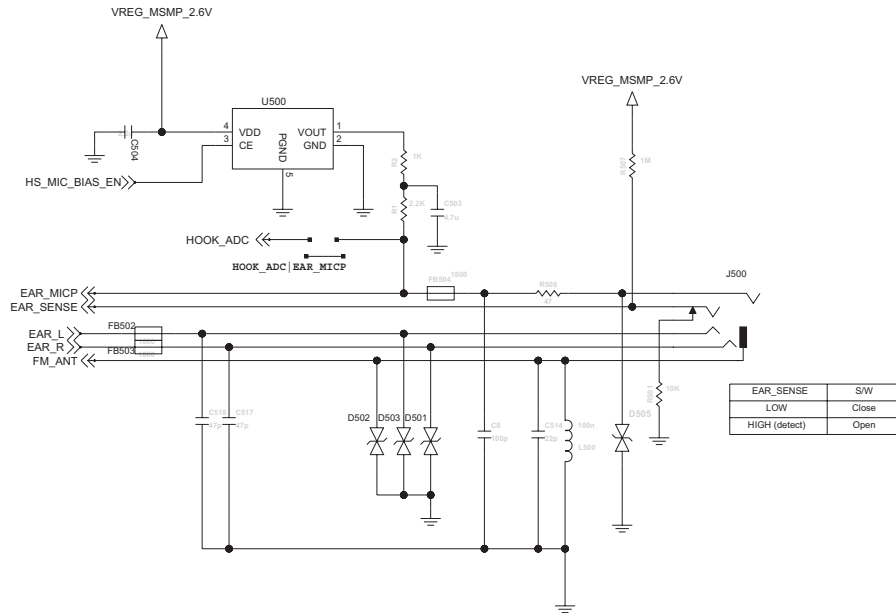
MSM7227 Block



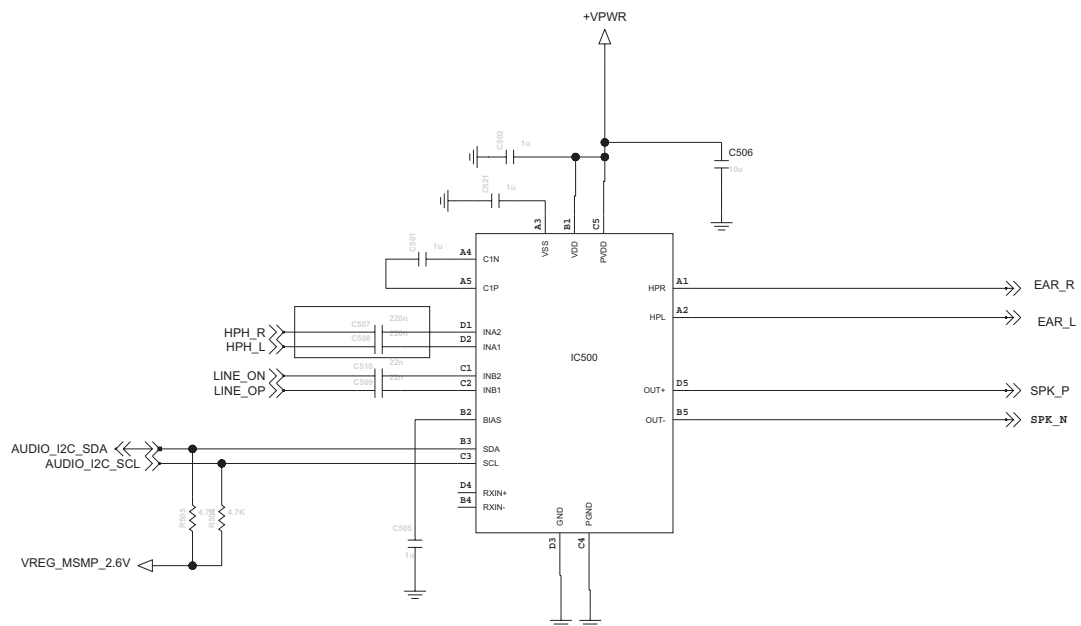
Handset main MIC Block



3.5pi Ear/mic Set Jack Block



Audio Subsystem(MAX9877) Block

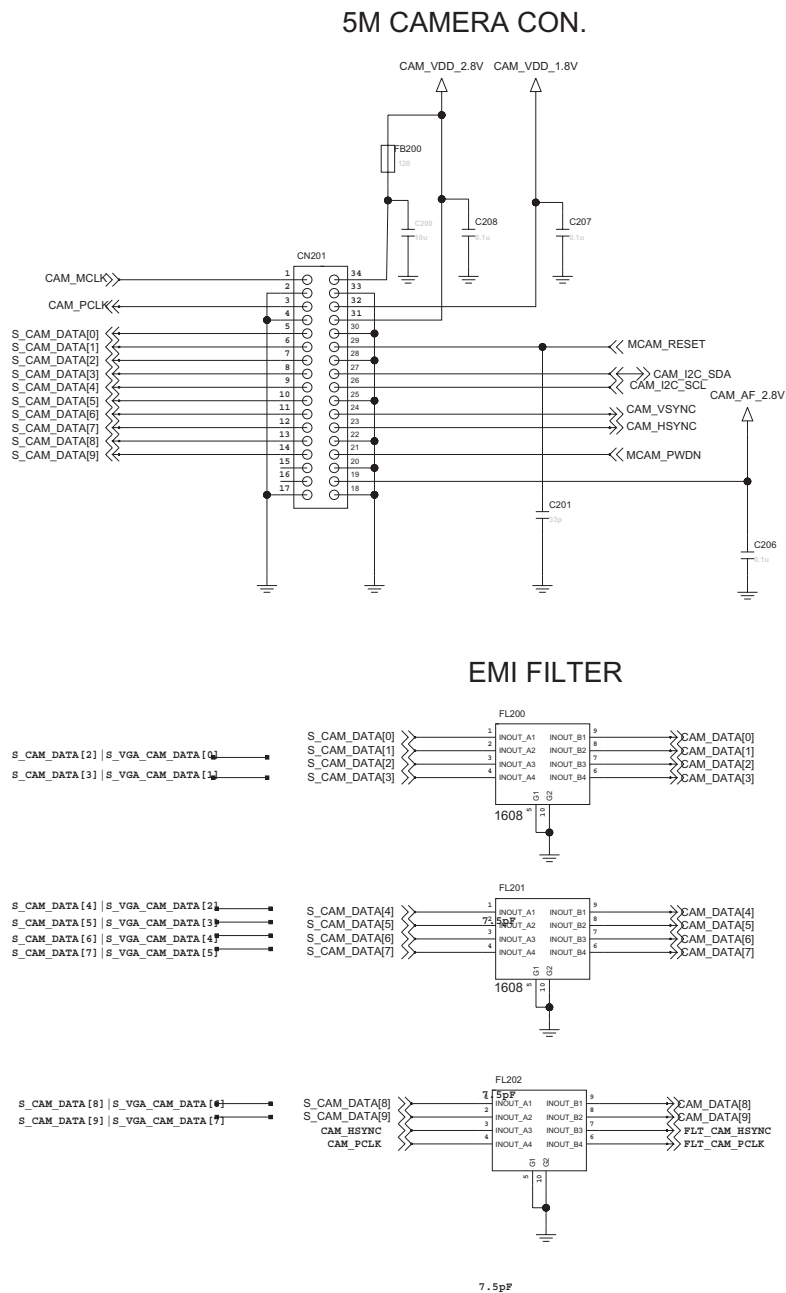


3. TECHNICAL BRIEF

3.8 Camera / LCD

GD880 has two cameras : 5M Pixel CMOS Camera and VGA camera.
Below figures shows the 5M camera I/F

3.8.1 5 Mega Camera Interface



NO	NAME	TYPE	Description
1	S_CAM_MCLK	Input	Master clock input
2	GND	Ground	Ground
3	S_CAM_PCLK	Output	CAMERA clock output
4	GND	Ground	Ground
5~14	DATA[0]~[9]	NC	NC
15	NC	NC	NC
16	NC	Output	Data line
17	GND	Ground	Ground
18	GND	Ground	Ground
19	CAM_VDD_AF_2.8V	Power	AF Motor power (2.8V)
20	GND	Ground	Ground
21	S_MCAM_PWDN	Input	Camera Power Down (Active "H")
22	GND	Ground	Ground
23	S_CAM_HSYNC	Input	SYNC
24	S_CAM_VSYNC	Input	SYNC
25	GND	Ground	Ground
26	S_CAM_I2C_SCL	Input	I2C Clock
27	S_CAM_I2C_SDA	Input/Output	I2C Data
28	GND	Ground	Ground
29	S_MCAM_RESET_N	Input	Camera reset (Active "L")
30	GND	Ground	Ground
31	CAM_VDD_2.8V	Power	Digital Power (2.8V)
32	CAM_VDD_1.8V	Power	Digital Power (1.8V)
33	GND	Ground	Ground
34	CAM_VDD_2.8V	Input	Digital Power (2.8V)

Table. Interface between 5M Camera Module and MAIN Board

The camera port supply 6MHz master clock to camera module and receive serial data from camera module. And MSM7227 supply converted 8bits data, 60MHz pixel clock(max.15fps@ full resolution), vertical sync signal, horizontal sync signal, reset signal to MSM7227 again. The camera module is controlled by I2C port from MSM7227.

3.8.2 VGA Camera Interface

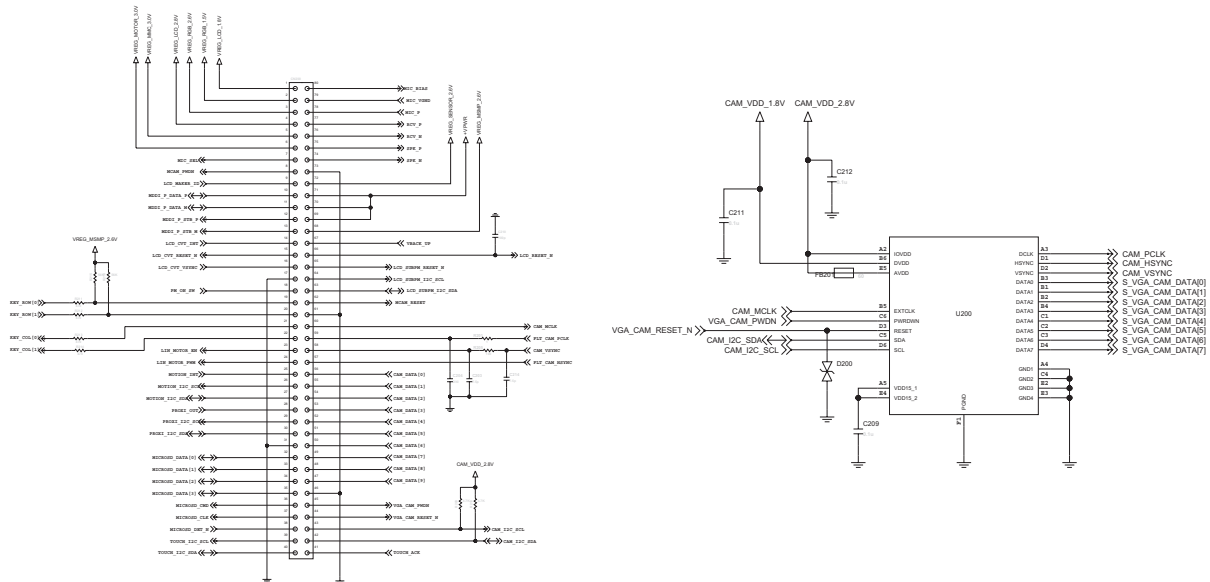


Figure. Schematic of VGA Camera Module and I/F

The VGA Camera module is mounted to SUB FPCB. Its interface is dedicated camera interface port in MSM7227. The camera port supply 12MHz master clock to camera module and receive 19.2MHz pixel clock (max.30fps@VGA), vertical sync signal, horizontal sync signal, reset signal and 8bits data from camera module. The camera module is controlled by I2C port from MSM7227.

3.8.3 LCD module

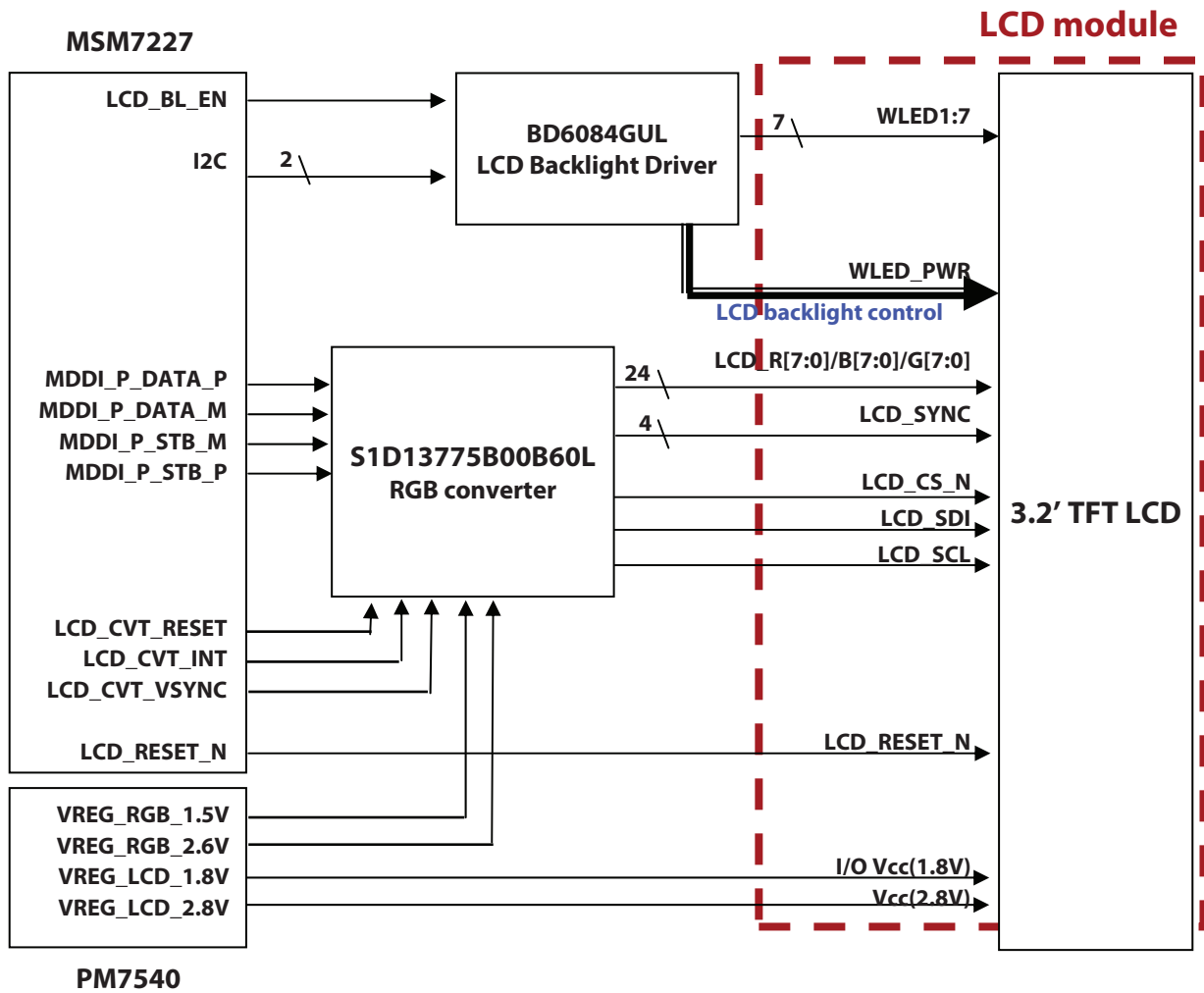


Figure. LCD I/F Block Diagram

3. TECHNICAL BRIEF

3.8.4 Display

LCD module is connected to Main PCB with 60-pin connector(AXT660124). The LCD is controlled by RGB Interface in S1D13775B00B60L that is converter MDDI to RGB.

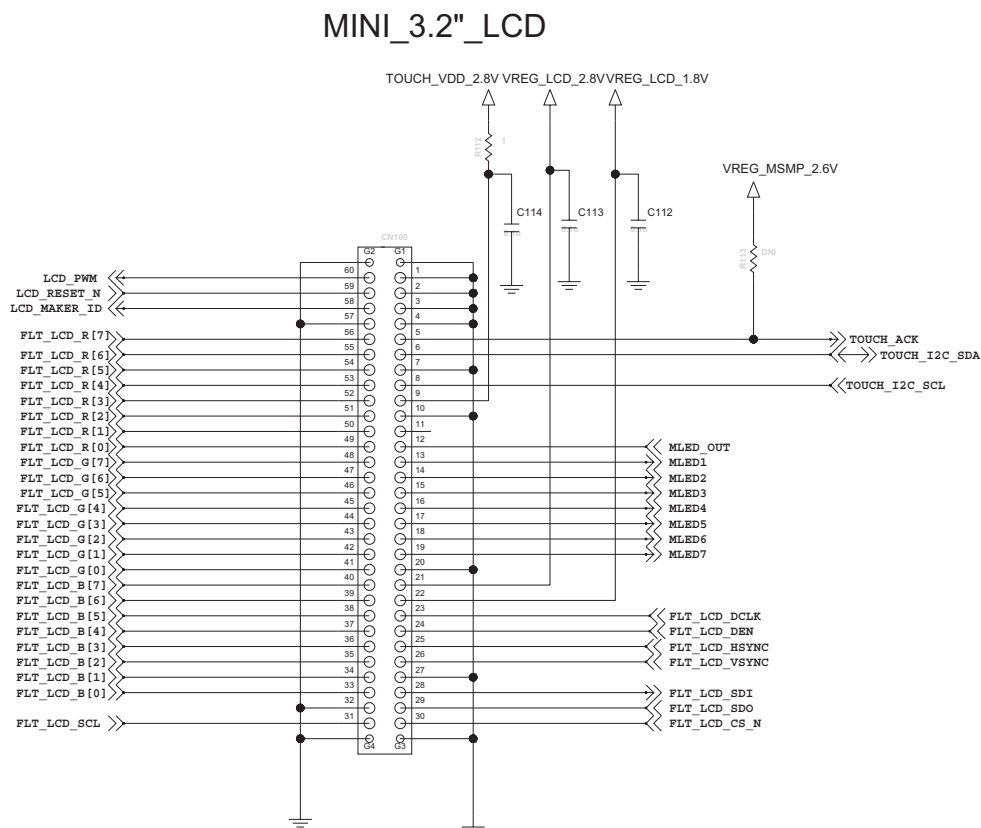


Figure. Schematic of LCD connector (in Sub PCB)

3.8.5 Pin Description

Input Signal and Power: Pin Description (60Pin, AXT660124)

Pin No.	Symbol	Description
1	PWM	LED PWM (CABC)
2	RESET	RESET SIGNAL
3	MAKER_ID(HIGH)	ID_Maker (IOVCC)
4	GND	Ground (0V)
5	DB23	Data23, Bi-Directional Data Bus (RED 7)
6	DB22	Data22, Bi-Directional Data Bus (RED 6)
7	DB21	Data21, Bi-Directional Data Bus (RED 5)
8	DB20	Data20, Bi-Directional Data Bus (RED 4)
9	DB19	Data19, Bi-Directional Data Bus (RED 3)
10	DB18	Data18, Bi-Directional Data Bus (RED 2)
11	DB17	Data17, Bi-Directional Data Bus (RED 1)
12	DB16	Data16, Bi-Directional Data Bus (RED 0)
13	DB15	Data15, Bi-Directional Data Bus (GREEN 7)
14	DB14	Data14, Bi-Directional Data Bus (GREEN 6)
15	DB13	Data13, Bi-Directional Data Bus (GREEN 5)
16	DB12	Data12, Bi-Directional Data Bus (GREEN 4)
17	DB11	Data11, Bi-Directional Data Bus (GREEN 3)
18	DB10	Data10, Bi-Directional Data Bus (GREEN 2)
19	DB09	Data9, Bi-Directional Data Bus (GREEN 1)
20	DB08	Data8, Bi-Directional Data Bus (GREEN 0)
21	DB07	Data7, Bi-Directional Data Bus (BLUE 7)
22	DB06	Data6, Bi-Directional Data Bus (BLUE 6)
23	DB05	Data5, Bi-Directional Data Bus (BLUE 5)
24	DB04	Data4, Bi-Directional Data Bus (BLUE 4)
25	DB03	Data3, Bi-Directional Data Bus (BLUE 3)
26	DB02	Data2, Bi-Directional Data Bus (BLUE 2)
27	DB01	Data1, Bi-Directional Data Bus (BLUE 1)
28	DB00	Data0, Bi-Directional Data Bus (BLUE 0)
29	GND	Ground (0V)
30	SCK	Serial Clock
31	SCS	Serial Chip Select
32	SDI	Serial Data input
33	SDO	Serial Data output
34	GND	Ground (0V)
35	VSYNC	Vertical Sync
36	HSYNC	Horizontal Sync
37	ENABLE	Data Enable
38	DOTCLK	Pixel Clock
39	IOVCC	IO Voltage
40	VCI	Analog Voltage
41	GND	Ground (0V)
42	LED_C7	LED7 Cathode Connection
43	LED_C6	LED6 Cathode Connection
44	LED_C5	LED5 Cathode Connection
45	LED_C4	LED4 Cathode Connection
46	LED_C3	LED3 Cathode Connection
47	LED_C2	LED2 Cathode Connection
48	LED_C1	LED1 Cathode Connection
49	LED_AN	LED Anode Connection

3. TECHNICAL BRIEF

Pin No.	Symbol	Description
50	BLU_EN	BLU_ENABLE
51	GND	Ground (0V)
52	VDD(3V)	VDD(Touch)
53	SCL	SCL(Touch)
54	GND	Ground (0V)
55	SDA	SDA(Touch)
56	ACK	ACK(Touch)
57	NC	NC
58	NC	NC
59	NC	NC
60	NC	NC

Table. Interface between LCD Module and MAIN Board

3.9 Proximity Sensor

When call connected, the object is moved nearer to the proximity sensor.
LCD backlight and Touch screen is disable operation automatically.

U300 : GP2AP002S00F is Optical proximity sensor.

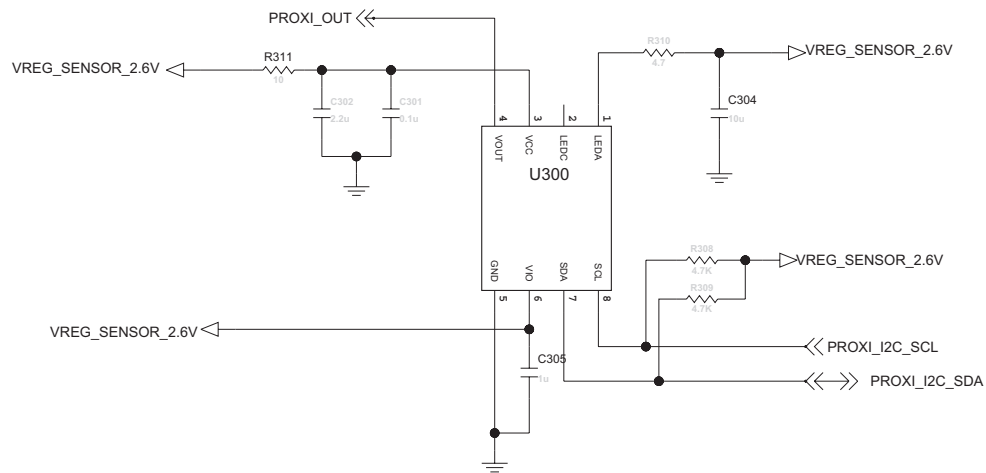


Figure. Proximity Sensor Schematic

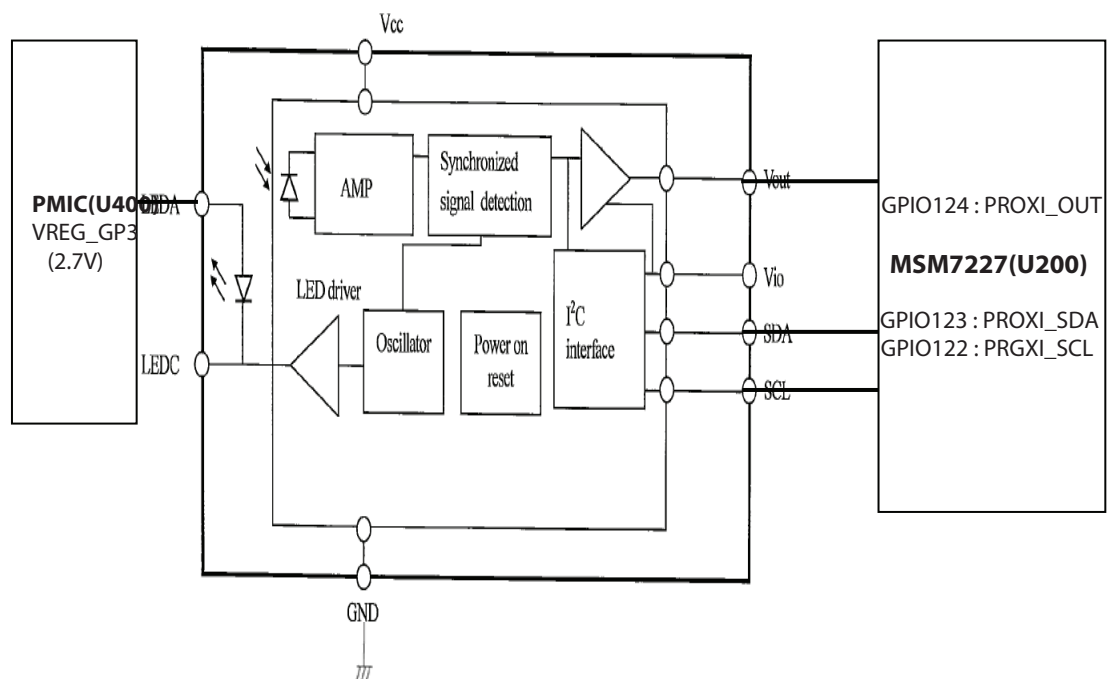
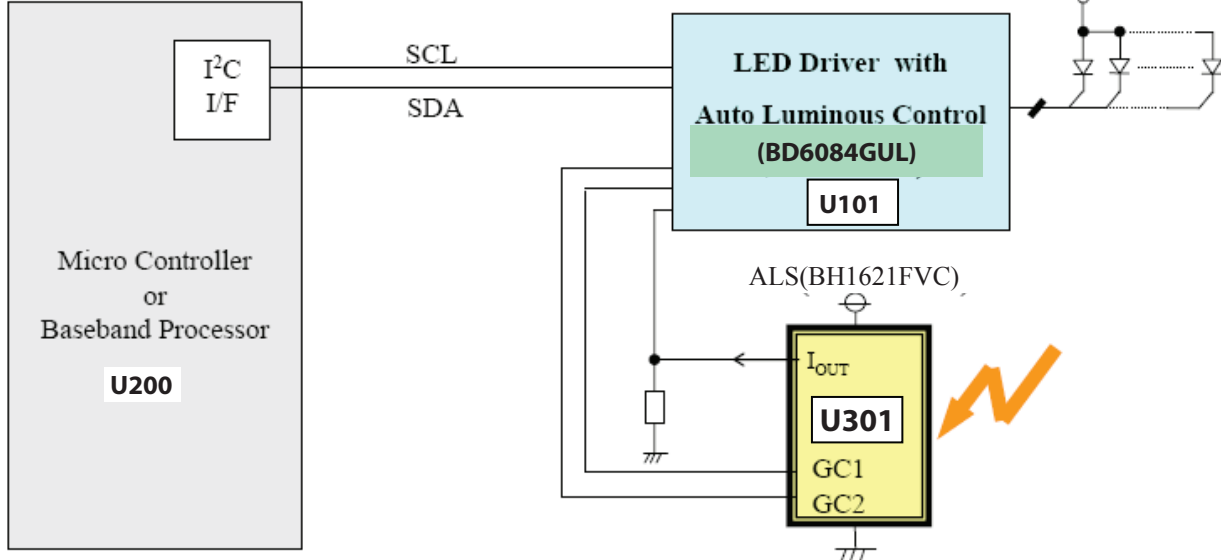
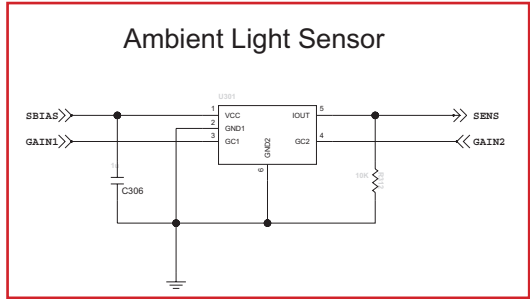


Figure. Proximity Sensor Block Diagram

When ALC sensor turn on, automatically controls brightness of the display backlight.

U301 : Luminance Sensor [FPCB]

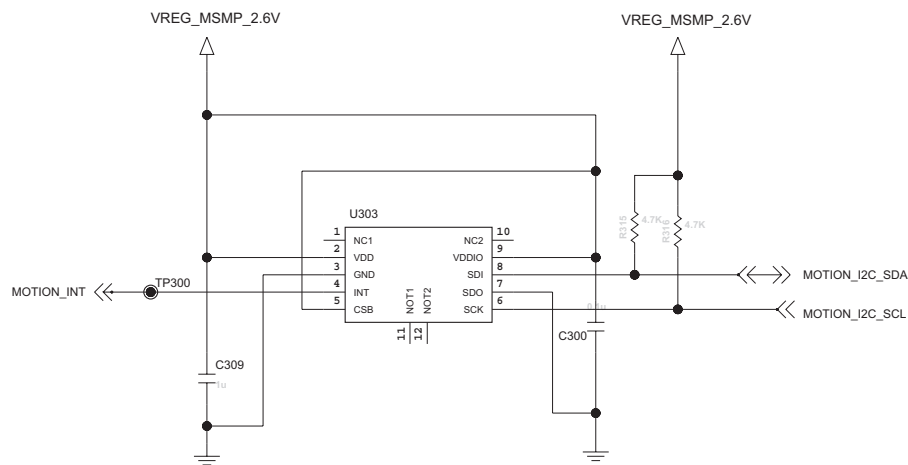


3.11 Motion Sensor

According to tilt the cell phone, the screen is had rotated automatically.

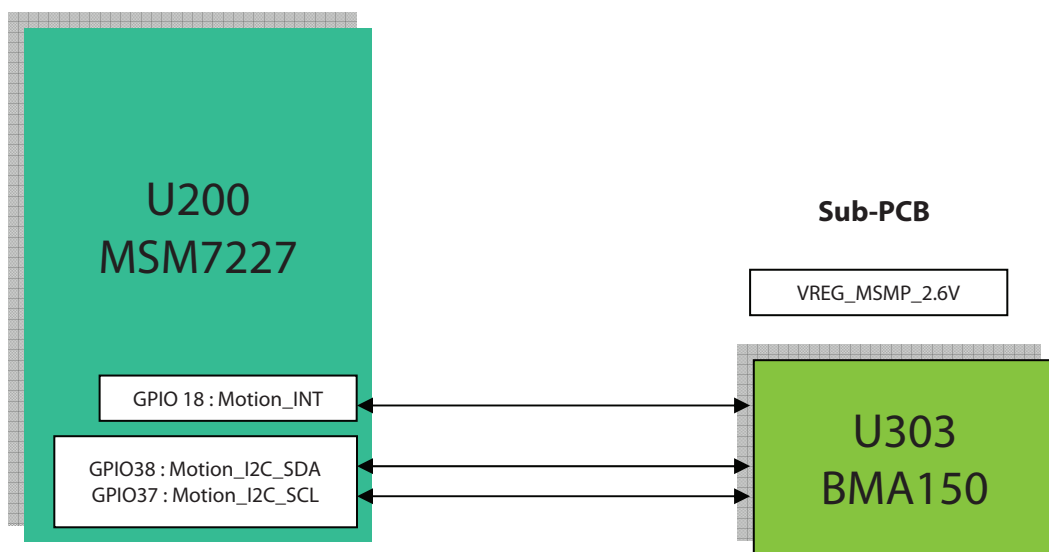
U303 : BMA150 IC used I2C interface to MSM7227

Motion Sensor Schematic



Luminance Sensor Block Diagram

Main Board



3. TECHNICAL BRIEF

3.12 Vibrators

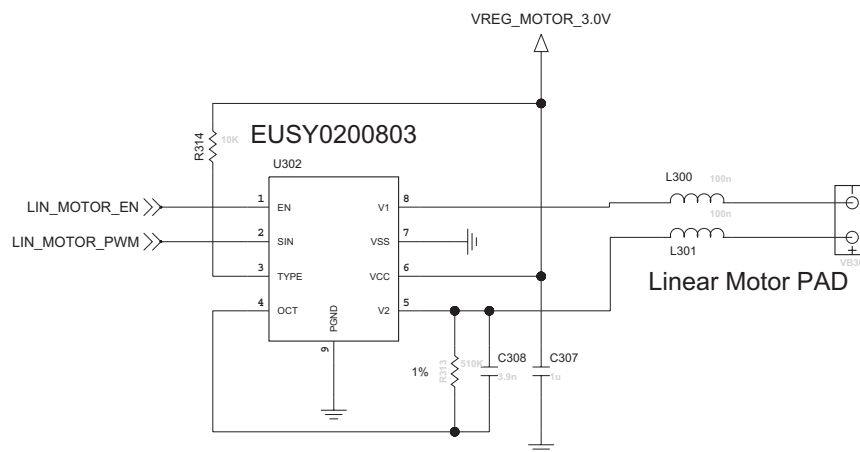
There is a linear motor.

Depending on user scenario, one of these motors operates or two motors operate at the same time.

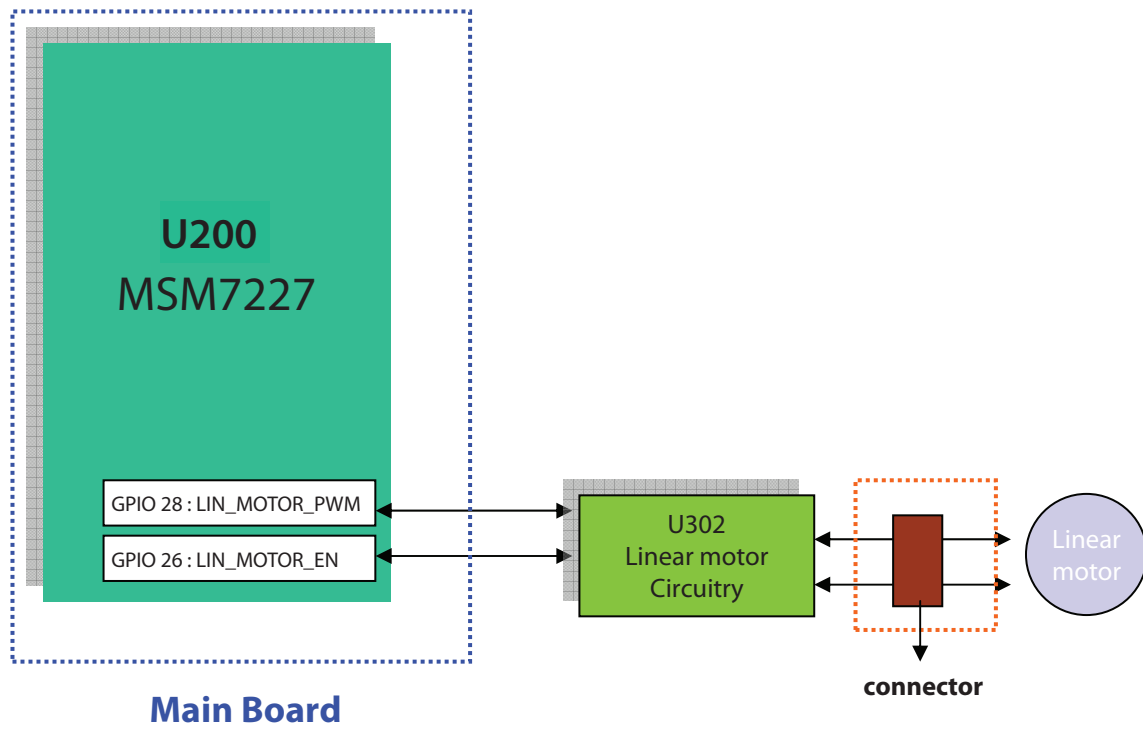
The strength of vibration is determined by the duty cycle of PWM (LIN_MOTOR_PWM for linear motor).

U302 : SM100 is Linear motor driver IC.

Linear Motor Schematic



Vibrator Block Diagram

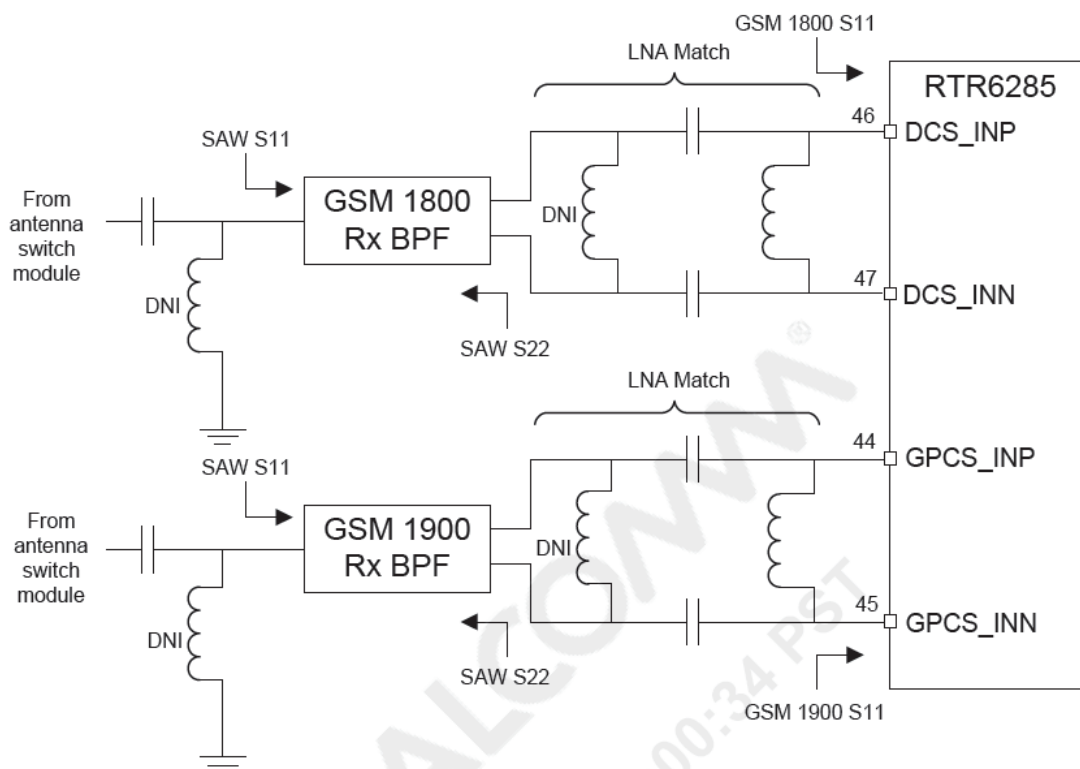


3. TECHNICAL BRIEF

3.13 GSM MODE

3.13.1 GSM RECEIVER

The GSM-850, GSM-900, GSM-1800, and GSM-1900 receiver inputs of RTR6285 are connected directly to the transceiver front-end Module. GSM-850, GSM-900, GSM-1800, and GSM-1900 receiver inputs use differential configurations to improve common-mode rejection and second-order non-linearity performance. For example Figure 1-2 shows receiver input topologies for DCS and PCS (GSM-850/900 have the same receiver input topologies). The balance between the complementary signals is critical and must be maintained from the RF filter outputs all the way into the IC pins.



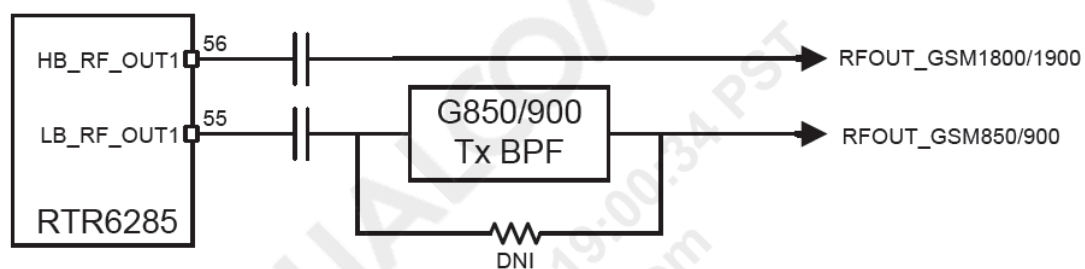
[Figure 1-2] DCS and PCS Receiver Inputs Topologies

Since GSM-850, GSM-900, GSM-1800, and GSM-1900 signals are time-division duplex (the handset can only receive or transmit at one time), switches are used to separate Rx and Tx signals in place of frequency duplexers – this is accomplished in the switch module. The GSM-850, GSM-900, GSM-1800, and GSM-1900 receive signals are routed to the RTR6285 through band selection filters and matching networks that transform single-ended 50- Ω sources to differential impedances optimized for gain and noise figure. The RTR input uses a differential configuration to improve second-order inter-modulation and common mode rejection performance. The RTR6285 input stages include MSM-controlled gain adjustments that maximize receiver dynamic range.

The amplifier outputs drive the RF ports of the quadrature RF-to-baseband downconverters. The downconverted baseband outputs are multiplexed and routed to lowpass filters (one I and one Q) having passband and stopband characteristics suitable for GMSK or 8-PSK processing. These filter circuits include DC offset corrections. The filter outputs are buffered and passed on to the MSM7227 IC for further processing as shown in Figure 1-4.

3.13.2 GSM TRANSMITTER

The RTR6285 transmitter outputs (HB_RF_OUT1 and LB_RF_OUT1) include on-chip output matching inductors. 50ohm output impedance is achieved by adding a series capacitor at the output pins. The capacitor value may be optimized for specific applications and PCB characteristics based on pass-band symmetry about the band center frequency as shown in Figure 1-3.



[Figure 1-3] GSM Transmitter Outputs Topologies

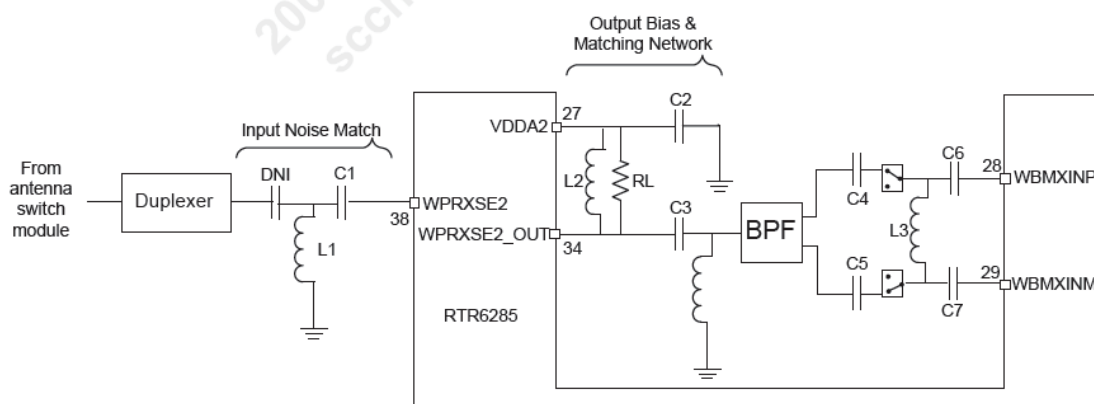
The RTR6285 IC is able to support GSM 850/900 and GSM 1800/1900 mode transmitting. This design guideline shows a tri-band GSM application. Both high-band and low band outputs are followed by resistive pads to ensure that the load presented to the outputs remains close to 50ohm.

3. TECHNICAL BRIEF

3.14 UMTS MODE

3.14.1 UMTS RECEIVER

The UMTS duplexer receiver output is routed to LNA circuits within the RTR6285 device as shown in Figure 1-4. The UMTS Rx input is provided with an on-chip LNA that amplifies the signal before a second stage filter that provides differential downconverter as shown in Figure 1-5. This second stage input is configured differentially to optimize second-order intermodulation and common mode rejection performance. The gain of the UMTS frontend amplifier and the UMTS second stage differential amplifier are adjustable, under MSM control, to extend the dynamic range of the receivers. The second stage UMTS Rx amplifiers drive the RF ports of the quadrature RF-to-baseband downconverters. The downconverted UMTS Rx baseband outputs are routed to lowpass filters having passband and stopband characteristics suitable for UMTS Rx processing. These filter circuits allow DC offset corrections, and their differential outputs are buffered to interface shared with GSM Rx to the MSM IC. The UMTS baseband outputs are turned off when the RTR6285 is downconverting GSM signals and on when the UMTS is operating.



[Figure 1-4] UMTS Receiver Inputs Topologies

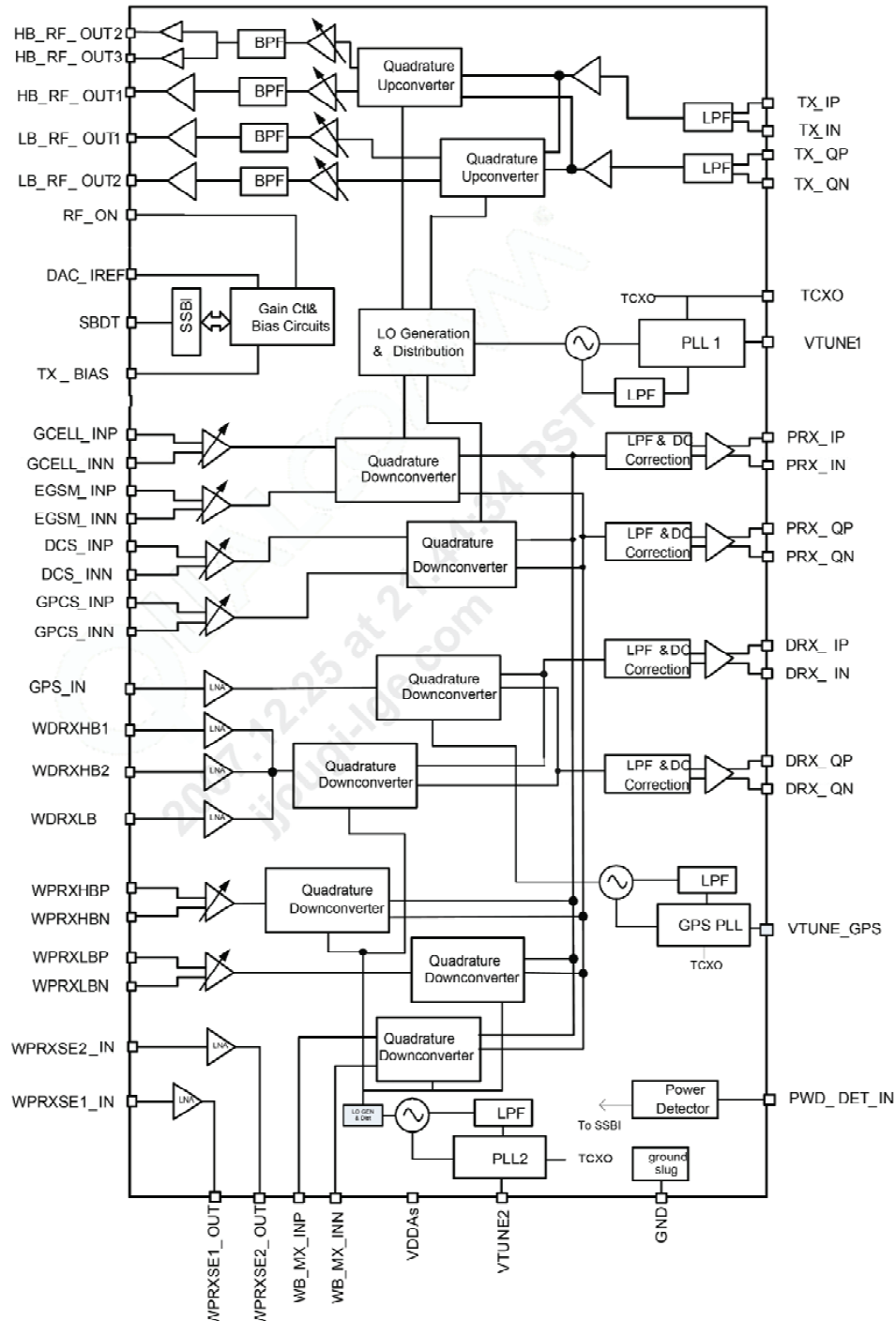
3.14.2 UMTS TRANSMITTER

The UMTS Tx path begins with differential baseband signals (I and Q) from the MSM device. These analog input signals are amplified, filtered, and applied to the quadrature up-converter mixers. The up-converter output is amplified by multiple variable gain stages that provide transmit AGC control. The AGC output is filtered and applied to the driver amplifier; this output stage includes an integrated matching inductor that simplifies the external matching network to a single series capacitor to achieve the desired 50- Ω interface.

The RTR6285 UMTS output is routed to its power amplifier through a bandpass filter, and delivers fairly high-level signals that are filtered and applied to the PA. Transmit power is delivered from the duplexer to the antenna through the switch module. The transceiver LO synthesizer is contained within the RTR6285 IC with the exception of the off-chip loop filter components and the VC-TCXO. This provides a simplified design for multimode applications. The PLL circuits include a reference divider, phase detector, charge pump, feedback divider, and digital logic generator.

UMTS Tx. Using only PLL1, the LO generation and distribution circuits create the necessary LO signals for nine different frequency converters. The UMTS transmitter also employs the ZIF architecture to translate the signal directly from baseband to RF. This requires FLO to equal FRF, and the RTR6285 IC design achieves this without allowing FVCO to equal FRF. The RTR6285 IC is able to support UMTS 2100/1900/1800/1700 and 850 mode transmitting. This design guideline shows only UMTS 2100 applications.

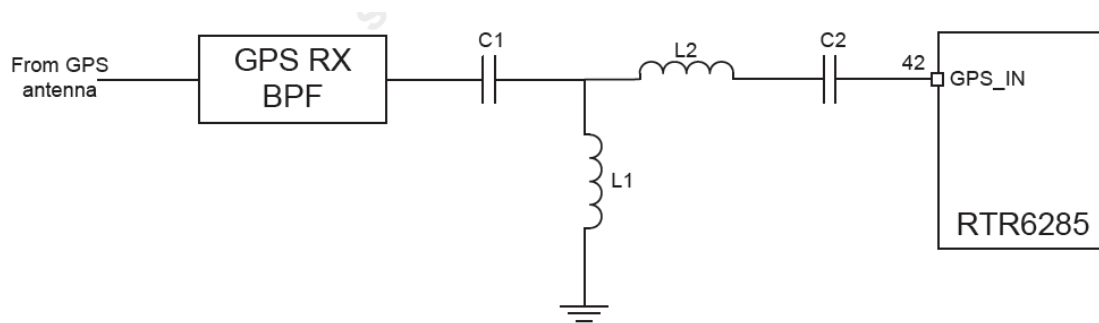
3. TECHNICAL BRIEF



[Figure 1.5] RTR6285 IC Functional Block Diagram

3.15 GPS RECEIVER

The GPS receiver input employs a single-ended connection realized by this pin. The GPS input is routed from the GPS antenna switch, through a band pass filter and then an impedance transformer circuit that optimally matches the impedance looking into the GPS LNA. The impedance transformer circuit topology is shown in Figure 1-6.



[Figure 1.6] GPS Input Network Topology

3.16 LO GENERATION and DISTRIBUTION CIRCUIT

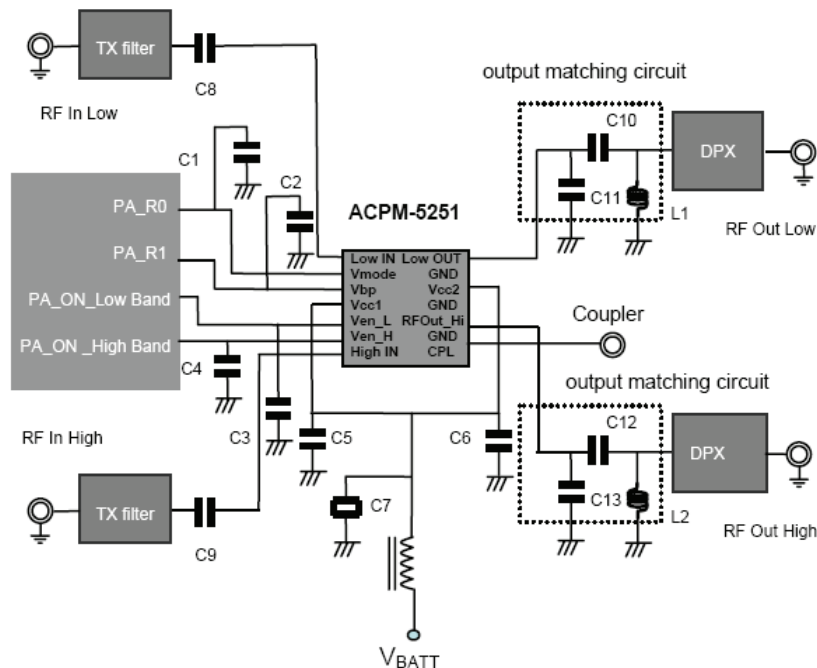
The integrated LO generation and distribution circuits are driven by internal VCOs to support various modes to yield highly flexible quadrature LO outputs that drive all GSM/EDGE, UMTS band and GPS up-converters and down-converters; with the help of these LO generation and distribution circuits, true zero-IF architecture is employed in all GSM and UMTS band receivers and transmitters to translate the signal directly from RF-to-baseband and from baseband-to-RF. Two fully functional fraction-N synthesizers, including VCOs and loop filters, are integrated within the RTR6285 IC. In addition, the RTR6285 has a third synthesizer used for GPS operation. The first synthesizer (PLL1) in the RTR6285 creates the transceiver Los that support the UMTS transmitter, and all four GSM band receivers and transmitters including: GSM850, GSM900, GSM1800, and GSM1900. The second synthesizer (PLL2) in the RTR6285 IC provides the LO for the UMTS primary receiver. For the RTR6285 IC only, the second synthesizer also provides the LO for the secondary UMTS receiver. The third synthesizer (PLL3), only in the RTR6285 IC, provides the LO for the GPS receiver. An external TCXO input signal is required to provide the synthesizer frequency reference to which the PLL is phase and frequency locked. The RTR6285 ICs integrate most of the PLL loop filter components on-chip except for three off-chip loop filter-series capacitors, which significantly reduces off-chip component requirement. With the integrated fractional-N PLL synthesizers, the RTR6285 ICs have the advantage of more flexible loop bandwidth control, fast lock time, and low-integrated phase error.

3. TECHNICAL BRIEF

3.17 OFF-CHIP RF COMPONENTS

3.17.1 UMTS PAM (U1002, ACPM-5281)

The ACPM-5281 is a dual-band PAM (Power Amplifier Module) designed for UMTS Band1 and Band8. The ACPM-5281 meets stringent UMTS linearity requirements. The 4mmx5mm form factor 14-pin surface mount package is self contained, incorporating 50ohm input and output matching networks. The ACPM-5281 features 5th generation of CoolPAM circuit technology which supports 3 modes – bypass, mid and high power modes. The CoolPAM is stage bypass technology which enables power amplifier to lower power consumption. Active bypass feature is added to 5th generation to enhance power added efficiency at low output range and this technology extends talk time of mobiles more by further saving power amplifier's current consumption. The power amplifier is manufactured on an advanced InGaP HBT (hetero-junction Bipolar Transistor) MMIC (microwave monolithic integrated circuit) technology offering state-of-the-art reliability, temperature stability and ruggedness. The Module is housed in a cost effective, small and thin 4x5mm package.



3.17.2 19.2MHz VCTCXO (X200, TG-5010LH_19_2M_75A)

The Voltage Controlled Temperature Compensated Crystal Oscillator (VCTCXO) provides the reference frequency for all RFIC synthesizers as well as clock generation functions within the MSM6285 IC. The oscillator frequency is controlled by the MSM6285 ICs. TRK_LO_ADJ pulse density modulated signal in the same manner as the transmit gain control TX_AGC_ADJ. A two-pole RC lowpass filter is recommended on this control line. The PM7540 IC controls the handset power-up sequence, including a special VCTCXO warm-up interval before other circuits are turned on. This warm-up interval (as well as other TCXO controller functions) is enabled by the MSM TCXO_EN line. The PM7540 IC VREG_TCXO regulated output voltage is used to power the VCTCXO and is enabled before most other regulated outputs. Any GSM mode power control circuits within the MSM7227 IC require a reference voltage for proper operation and sufficient accuracy. Connecting the PM7540 IC REF_OUT directly to the MSM7227 IC GSM_PA_PWR_CTL_REF provides this reference. This sensitive analog signal needs a 0.1 μ F low frequency filter near to MSM side, and isolate from digital logic and clock traces with ground on both sides, plus ground above and below if routed on internal layers.

Item		Symbol	Specifications		Remarks
			VC-TCXO	TCXO	
Output frequency		f ₀	10 MHz to 40 MHz		Standard frequency
			13 MHz, 19.2 MHz, 26 MHz		
Supply voltage		V _{cc}	2.8 V±0.14 V		
Temperature range	Storage temperature	T _{stg}	-40 °C to +85 °C		Store as bare product after unpacking
	Operating temperature	T _{use}	-30 °C to +85 °C		
Frequency tolerance		F _{tol(osc)}	±2.0 × 10 ⁻⁶ Max.		After reflow, V _c =1.4 V, +25 °C
Frequency / temperature coefficient		F _o -T _c	±2.0 × 10 ⁻⁶ Max.		-30 °C to +85 °C
Frequency / load coefficient		F _o -Load	±0.2 × 10 ⁻⁶ Max.		10 kΩ // 10 pF ±10 %
Frequency / voltage coefficient		F _o -V _{cc}	±0.2 × 10 ⁻⁶ Max.		2.8 V ± 0.14 V
Frequency aging		F _{aging}	±1.0 × 10 ⁻⁸ Max.		+25 °C, First year
Current consumption		I _{cc}	2.0 mA Max.		19.2 MHz, V _{cc} =2.8 V, 10 kΩ// 10 pF
Input resistance		R _{in}	500 kΩ Min.	—	V _c - GND (DC), V _c =1.4 V
Frequency control range		F _{cont}	±5.0 × 10 ⁻⁴ to ±12.0 × 10 ⁻⁴	—	V _c =1.4 V ±1.0 V
Frequency change polarity		—	Positive polarity	—	
Symmetry		SYM	40 % to 60 %		GND level (DC cut)
Output level		V _{pp}	0.8 V Min.		Peak to peak
Load resistance		Load_R	10 kΩ		DC cut capacitor = 0.01 μF
Load capacitance		Load_C	10 pF		

3. TECHNICAL BRIEF

3.17.3 ASM (FL1007, D5017)

This equipment uses a single antenna to support all handset operating modes, with an antenna switch module select the operating frequency and band. UMTS operation requires simultaneous reception and transmission, so the UMTS Rx/Tx connection is routed to a duplexer that separates receive and transmit signals. The active connection is MSM-selected by three control lines (GPIO[72], GPIO[73], GPIO[74] and GPIO[75]). These GPIOs are programmed to be ANT_SEL3, ANT_SEL2, ANT_SEL1 and ANT_SELO respectively.

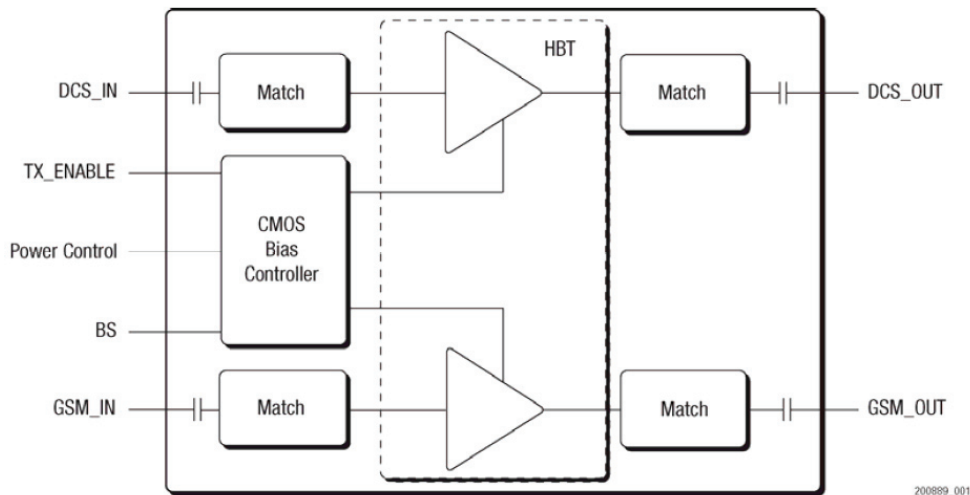
Control Logic

	CTRL 1	CTRL 2	CTRL 3	CTRL 4
GSM850 / EGSM TX	1	1	0	0
PCN / PCS TX	1	0	0	0
WB850	0	1	0	1
WB1900	0	0	0	1
WB2100	0	0	1	1
GSM850 RX	0	1	1	0
EGSM RX	0	0	1	0
PCN RX	0	1	0	0
PCS RX	0	0	0	0

3.17.4 GSM PAM (U1004, SKY77336)

SKY77336 Power Amplifier Module (PAM) is designed in a compact form factor for quad-band cellular handsets comprising GSM850/900, DCS1800 and PCS1900, supporting Gaussian Minimum-Shift Keying (GMSK) and Polar Enhanced Data for GSM Evolution (EDGE) modulation. Class 12 General Packet Radio Service (GPRS) multi-slot operation is also supported. The module consists of GSM850/900 PA and DCS1800/PCS1900 PA blocks, impedance matching circuitry for 50 Ω input and output impedances, and a Power Amplifier Control (PAC) block.

The custom CMOS integrated circuit provides the internal PAC function and interface circuitry. Fabricated in InGaP/GaAs, the Heterojunction Bipolar Transistor (HBT) PA blocks support the GSM850/900 bands and DCS1800/PCS1900 bands. Both PA blocks share common power supply pads to distribute current. The InGaP/GaAs die, Silicon (Si) controller die, and passive components are mounted on a multi-layer laminate substrate and the entire assembly is encapsulated with plastic overmold. RF input and output ports of the SKY77336 are internally matched to a 50 Ω load to reduce the number of external components for a quad-band design. Extremely low leakage current (10 μ A, typical) of the PAM module maximizes handset standby time. The SKY77336 also contains band-select switching circuitry to select GSM (logic 0) or DCS/PCS (logic 1) as determined from the Band Select (BS) signal. See Figure shown below.



3. TECHNICAL BRIEF

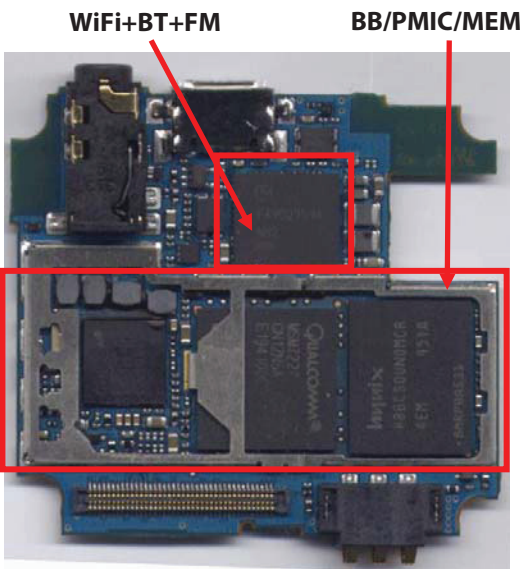
3.17.5 GPS LNA (U1001, ALM-2412)

The ALM-2412 is an LNA module, with integrated filter, designed for GPS band applications at 1.575GHz. The LNA uses AVAGO Technologies' proprietary GaAs Enhancement-mode pHEMT process to achieve high gain with very low noise figure and high linearity. Noise figure distribution is very tightly controlled. A CMOS-compatible shutdown pin is included either for turning the LNA on/off, or for current adjustment. The integrated filter utilizes an Avago Technologies' leading edge FBAR filter for exceptional rejection at Cell/PCS Band frequencies. The ALM-2412 is useable down to 1V operation. It achieves low noise figure, high gain and linearity even at 1V, making it suitable for use in critical low-power GPS applications or during low-battery situations. The Module is housed in a cost effective, small and thin package (3.3X2.1X1.1mm3). This part is MSL Class 3 and HBM ESD Level Class 1A.

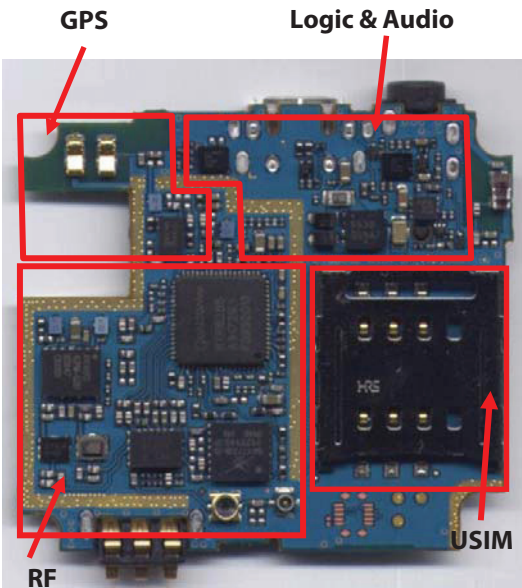
3.18 LG GD880 Main Features

- Bar Type Simple & Stylish design
- UMTS 2100 + UMTS 900+
GSM 900 + DCS 1800 + PCS 1900 + GSM850 based GSM/GPRS/EDGE/UMTS
- HSDPA 7.2Mbps
- TFT Main LCD(3.2', 480 x 854)
- Touch Sensitive User Interface
- 5M AF Camera
- 3.5Phi Stereo Headset & Speaker phone
- 64 Poly Sound
- MP3/AAC/AMR/MIDI/3GP/SMAF decoder and play
- MPEG4 encoder/decoder and play/save
- JPEG en/decoder
- Supports Bluetooth and HS-USB
- Supports WLAN
- 900 mAh (Li-Ion Polymer)

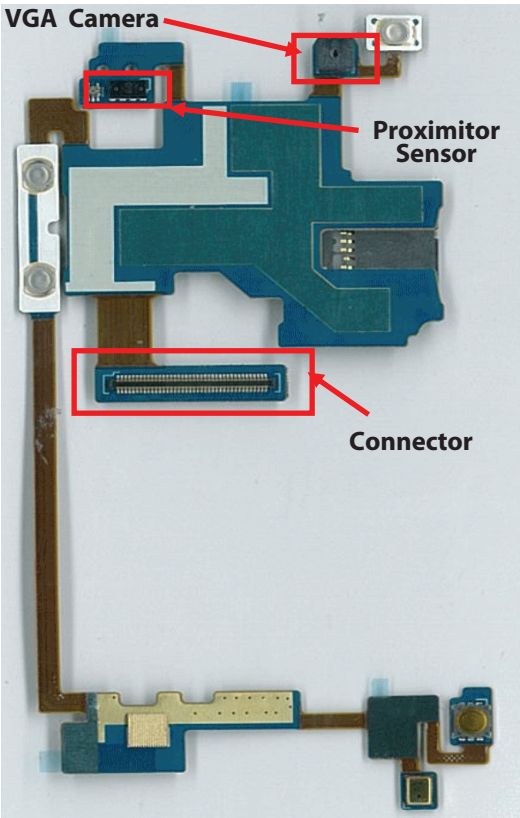
3.19 GD880 Main Component



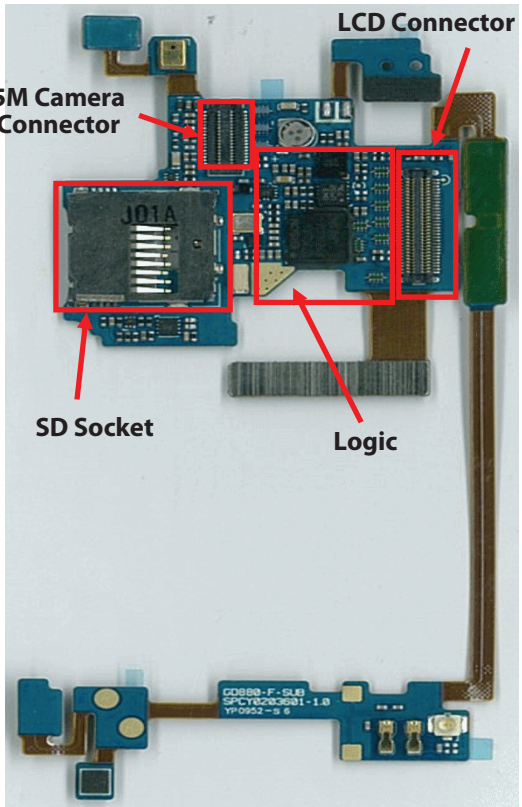
Main board, Top



Main board, Bottom



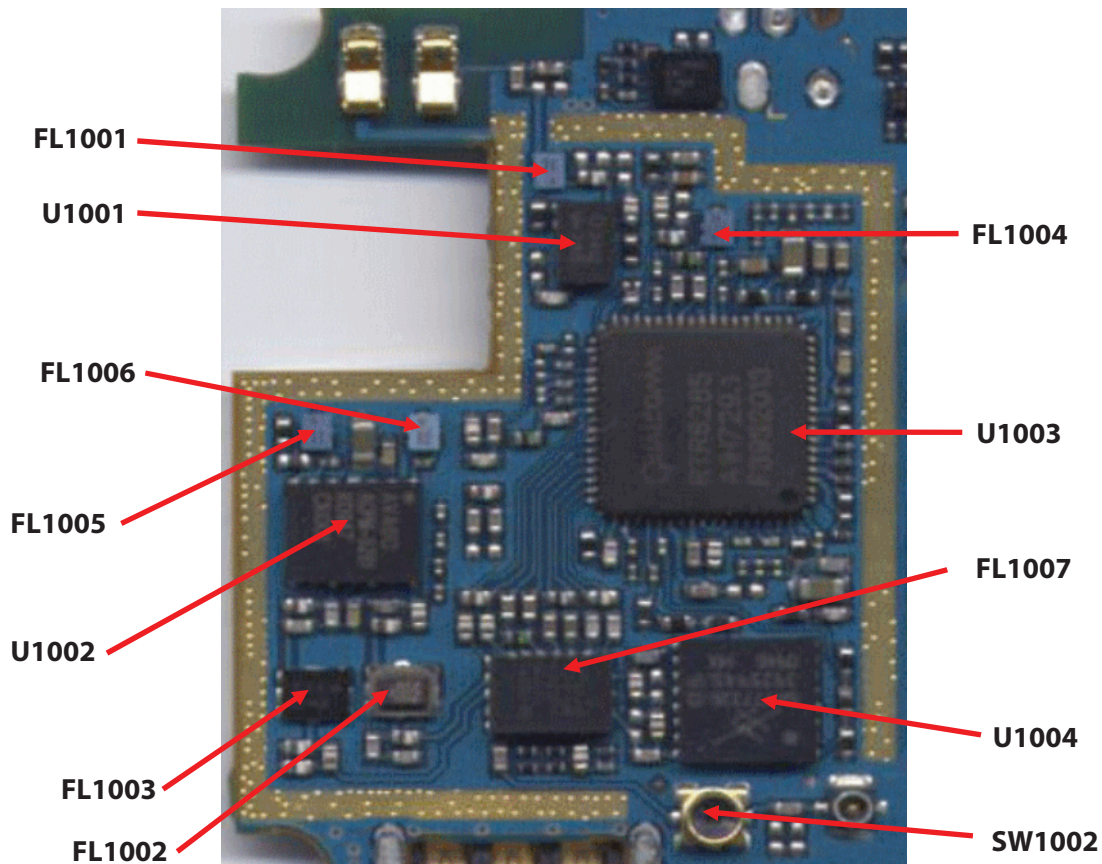
Sub board, Top



Sub board, Bottom

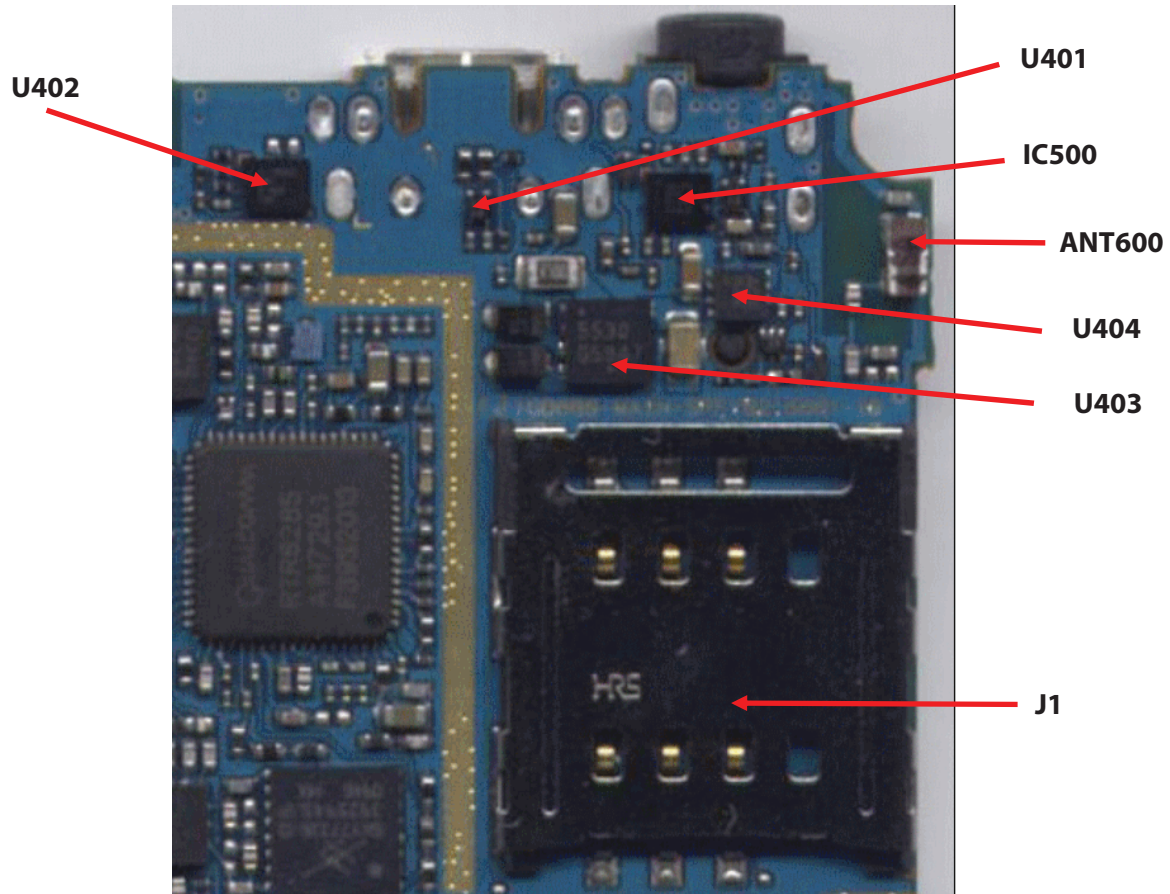
3. TECHNICAL BRIEF

RF



Reference	Description	Reference	Description
FL1002	WCDMA (VIII) Duplexer	FL1003	WCDMA (I) Duplexer
FL1006	WCDMA (VIII) TX SAW Filter	FL1007	FEM
FL1005	WCDMA (I) TX SAW Filter	U1004	GSM PAM
U1002	WCDMA Dual (1&8)PAM	U1003	RTR6285(Transceiver)
FL1004	WCDMA (I) RX SAW Filter	SW1002	RF Antenna connector
FL1001	GPS SAW Filter	U1001	GPS LNA

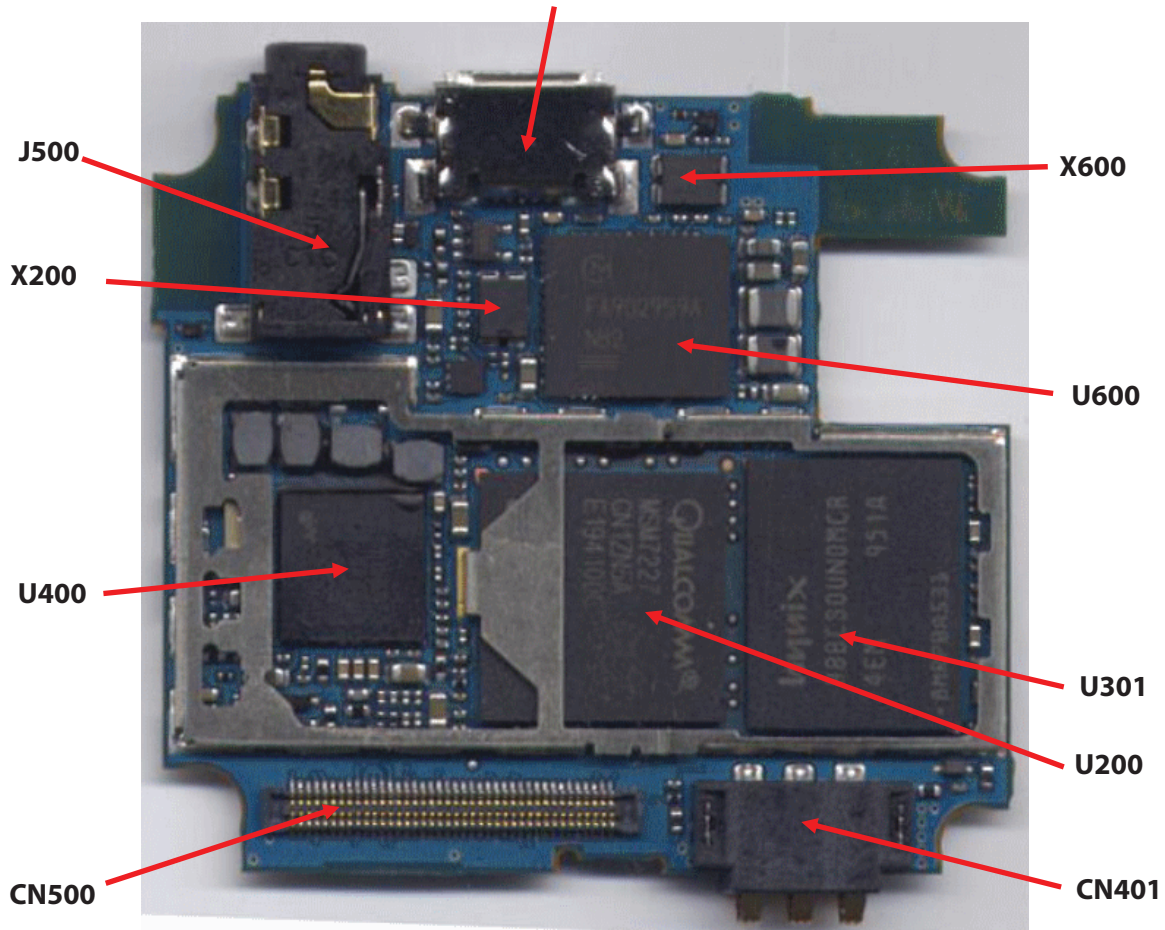
Logic



Reference	Description	Reference	Description
U402	MUIC for 5Pin Micro USB	J1	SIM Connector
U403	Power MOSFET for Changing	ANT600	WiFi/BT Antenna
U404	Over-voltage Protection	IC500	AUDIO_SUB_SYSTEM
U401	LDO for USB		

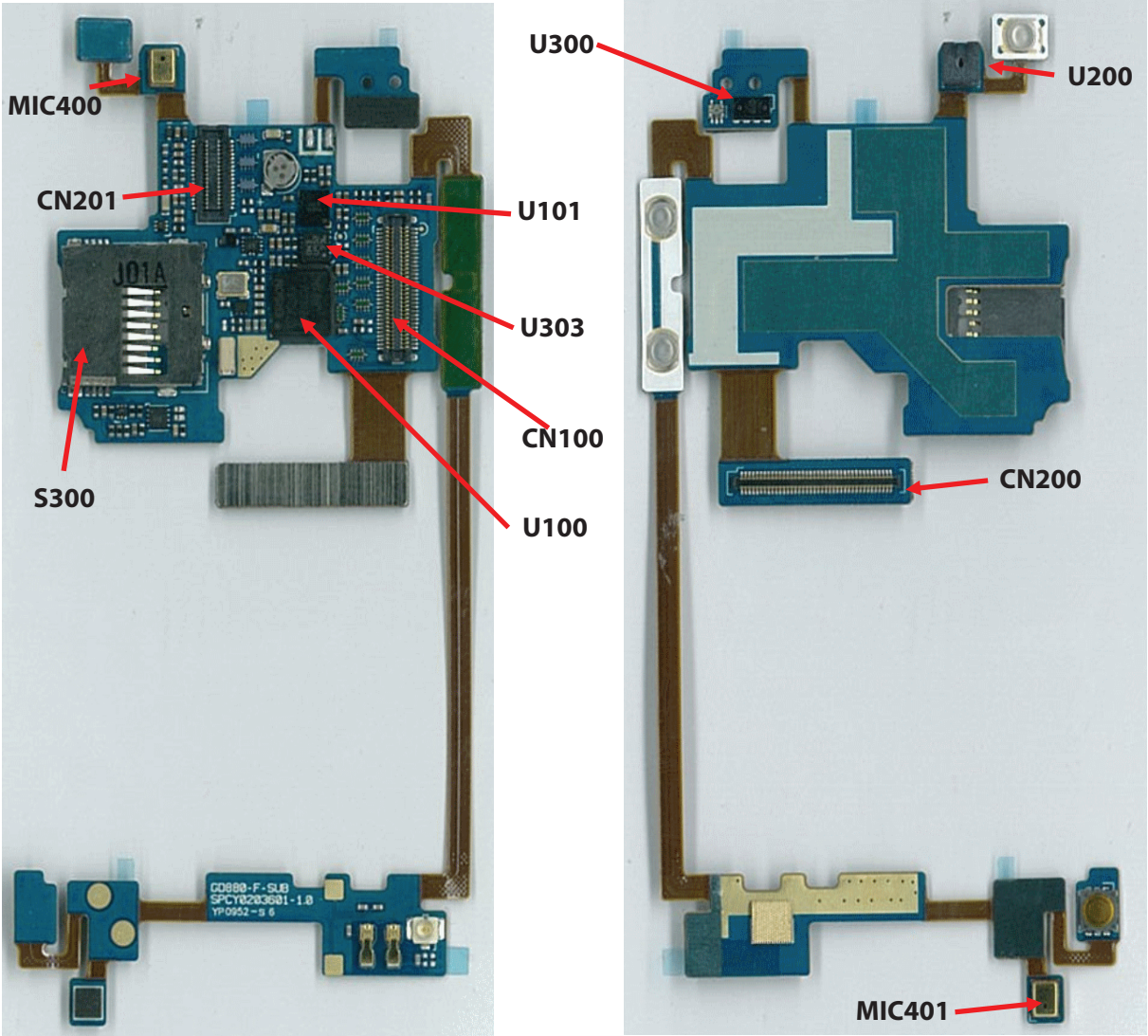
3. TECHNICAL BRIEF

BB / MEM / WiFi + BT



Ref.	Description	Ref.	Description
U200	MSM7227	U301	Memory, MCP
CN401	Battery Connector	CN500	Main to Sub Connector
U400	PMIC, PM7540	J500	3.5phi Ear-Jack
CN400	Micro USB 5Pin Con.	U600	Wi-Fi & BT Module
X200	TCXO (19.2MHz)	X600	TCXO (26MHz)

Logic

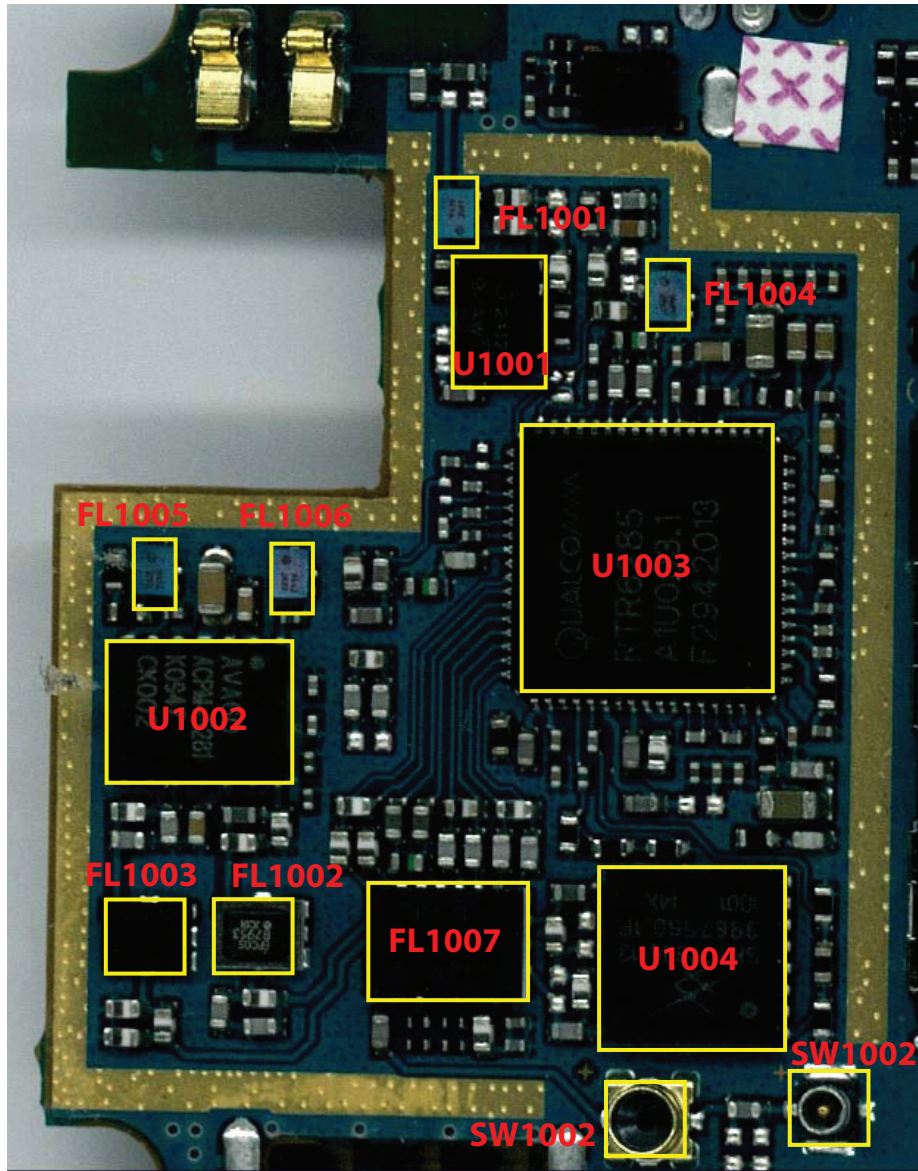


Ref.	Description	Ref.	Description
S300	Micro-SD Socket	CN201	5M Camera Connector
MIC400	MIC for Speaker Phone	U101	LCD Charge-pump
U303	Motion sensor	CN100	LCD Connector
U100	RGB Converter	U300	Proximitior Sensor
U200	VGA Camera	CN200	Sub to Main connector
MIC401	MIC		

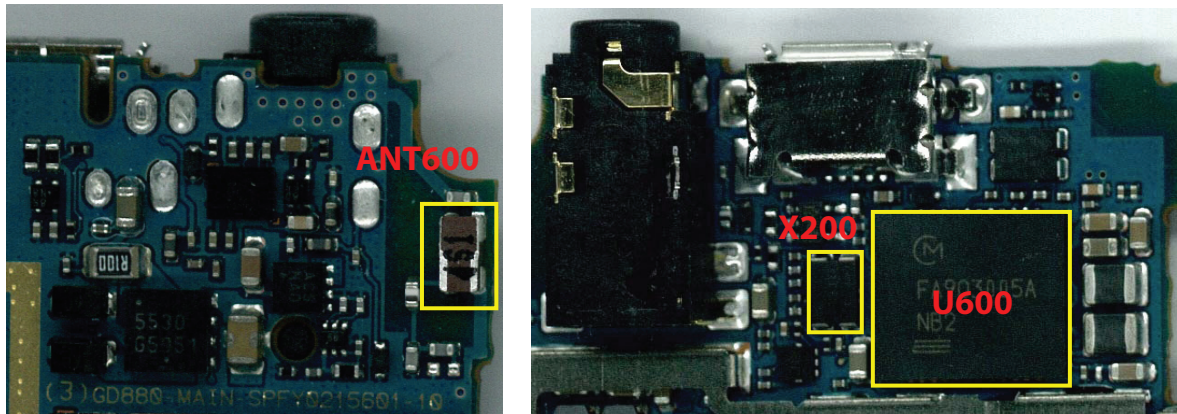
4. TROUBLE SHOOTING

4. TROUBLE SHOOTING

4.1 RF Component



4. TROUBLE SHOOTING

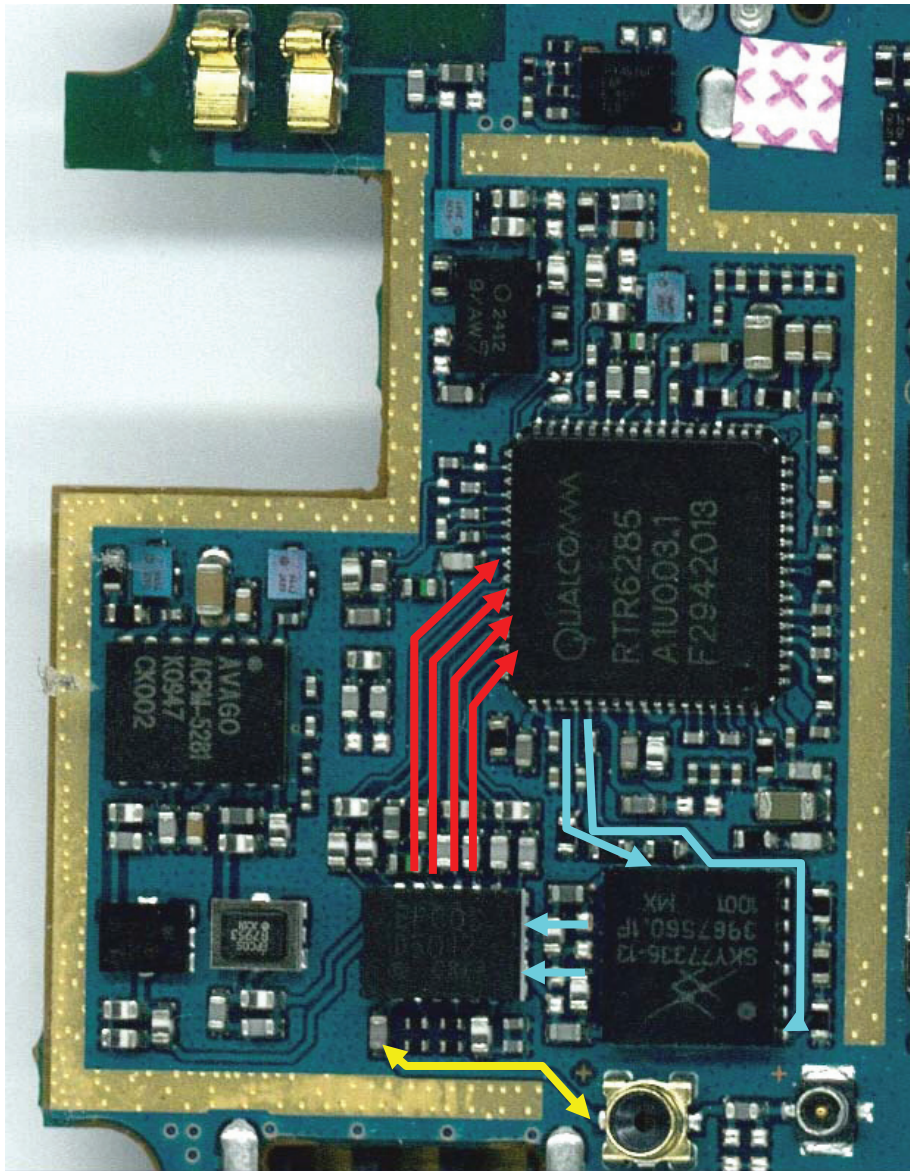


▪ RF component (WCDMA / GSM)

Reference	Description	Reference	Description
U1001	GPS LNA	FL1005	WCDMA (1) Tx SAW Filter
U1002	WCDMA Dual(1 & 8) PAM	FL1006	WCDMA (8) Tx SAW Filter
U1003	RTR6285	FL1007	Front End Module
U1004	GSM PAM	X200	VCTCXO (19.2 MHz)
FL1001	GPS SAW Filter	U600	Wifi/BT/FM Combo Module
FL1002	WCDMA (8) Duplexer	ANT600	Wifi/BT Antenna
FL1003	WCDMA (1) Duplexer	SW1001	RF Antenna Connector
FL1004	WCDMA (1) Rx Saw Filter	SW1002	RF Mobile Switch

4. TROUBLE SHOOTING

4.2 Signal Path



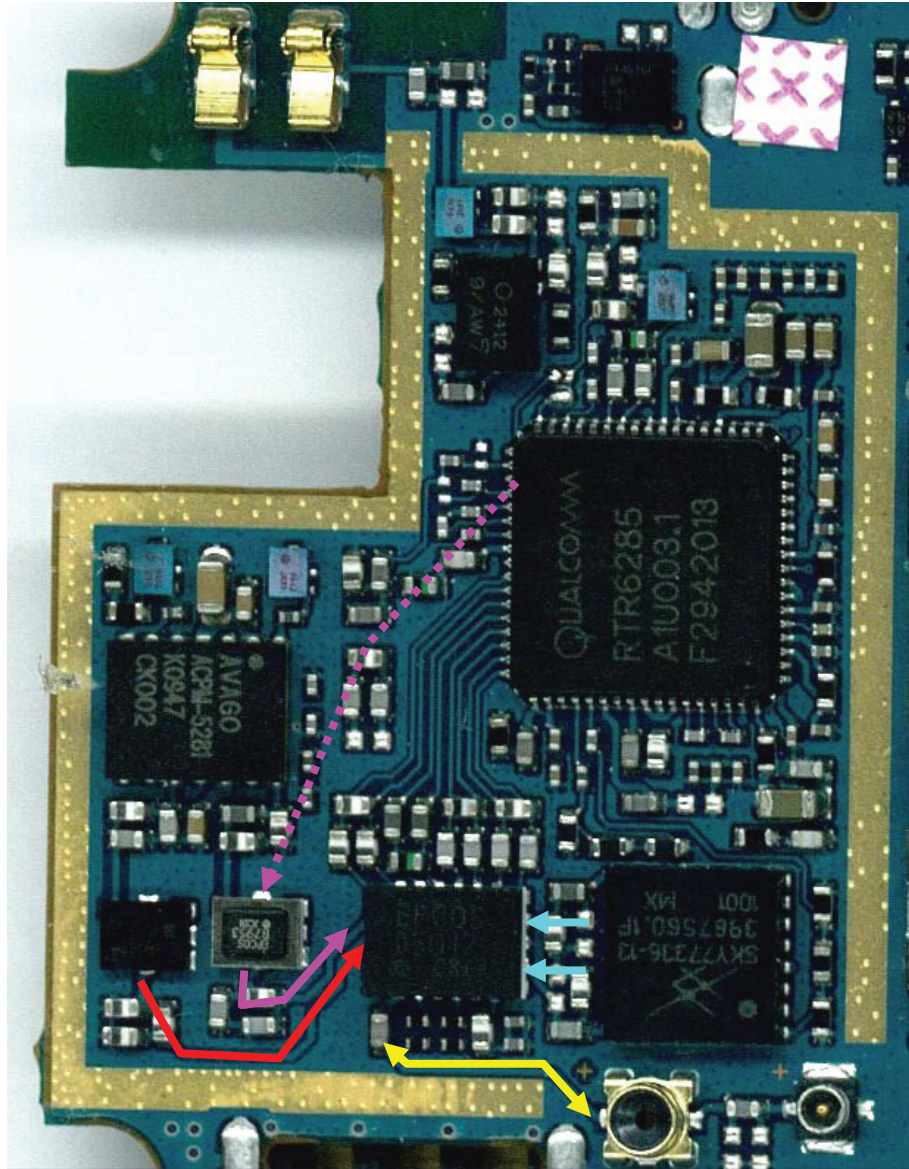
GSM850/GSM900/DCS/PCS's RX/TX Signal PATH

A. GSM850/GSM900/DCS1800/PCS1900 RX PATH

B. GSM850/GSM900/DCS1800/PCS1900 TX PATH

C. COMMON TX/RX PATH

4. TROUBLE SHOOTING



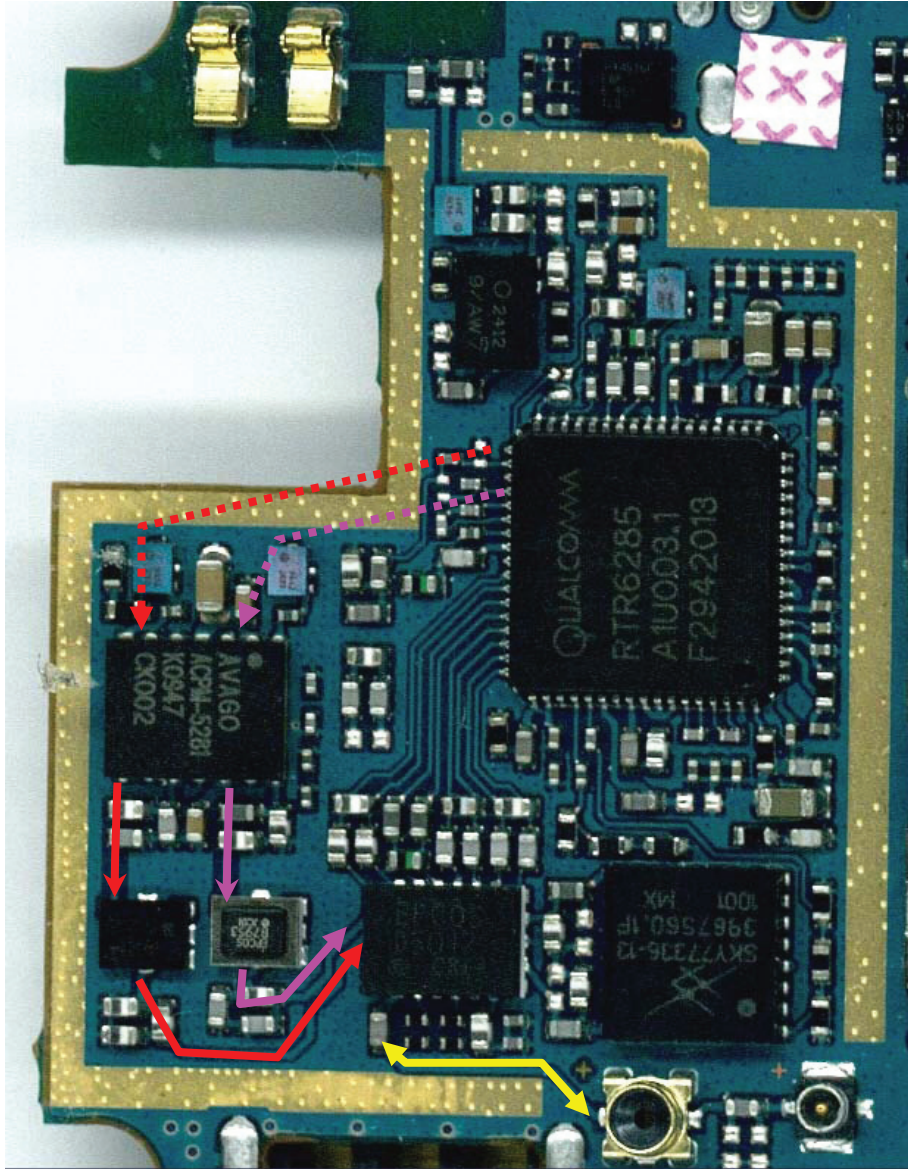
WCDMA BAND I and VIII RX Signal PATH

D1. WCDMA 2100 RX PATH

E1. W900 RX PATH

F1. COMMON TX/RX PATH

4. TROUBLE SHOOTING



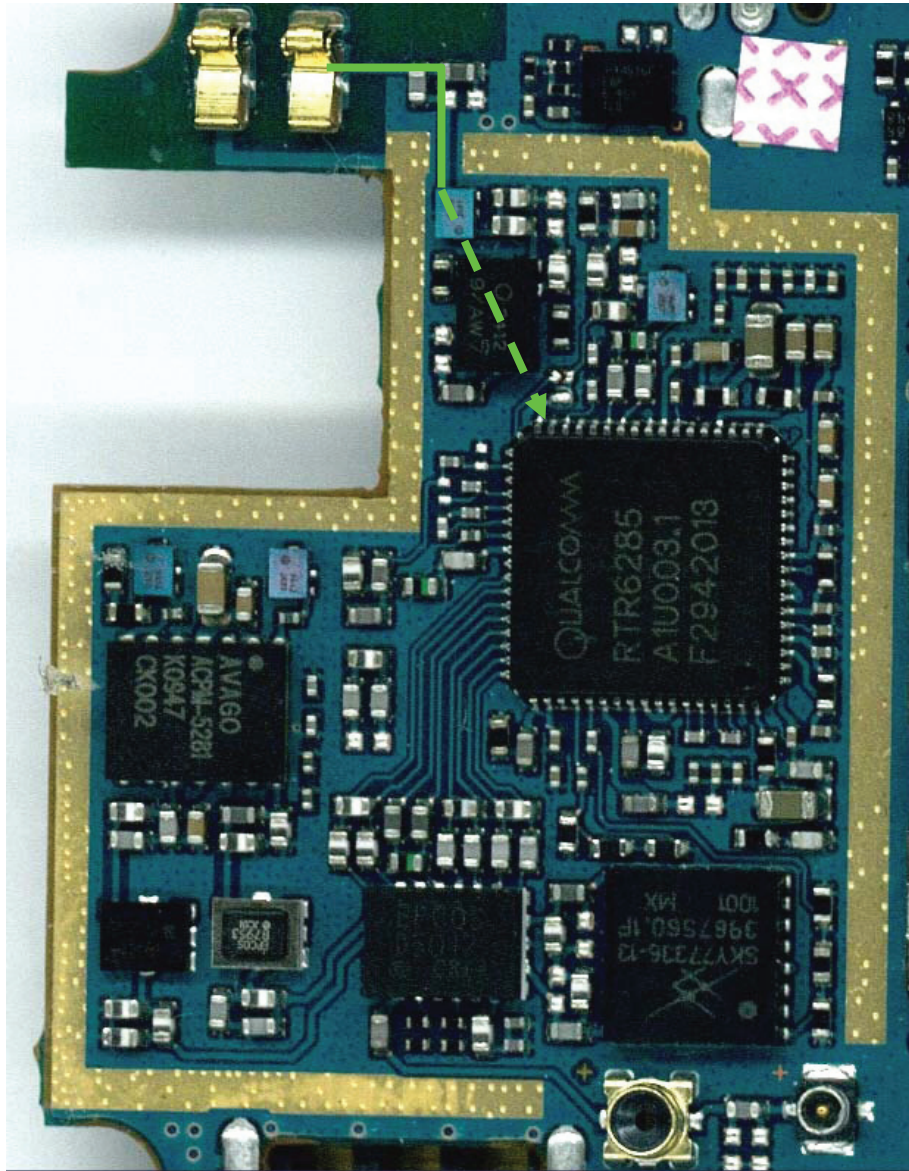
WCDMA BAND I and VIII TX Signal PATH

D1. WCDMA 2100 TX PATH

E1. W900 TX PATH

F1. COMMON TX/RX PATH

4. TROUBLE SHOOTING

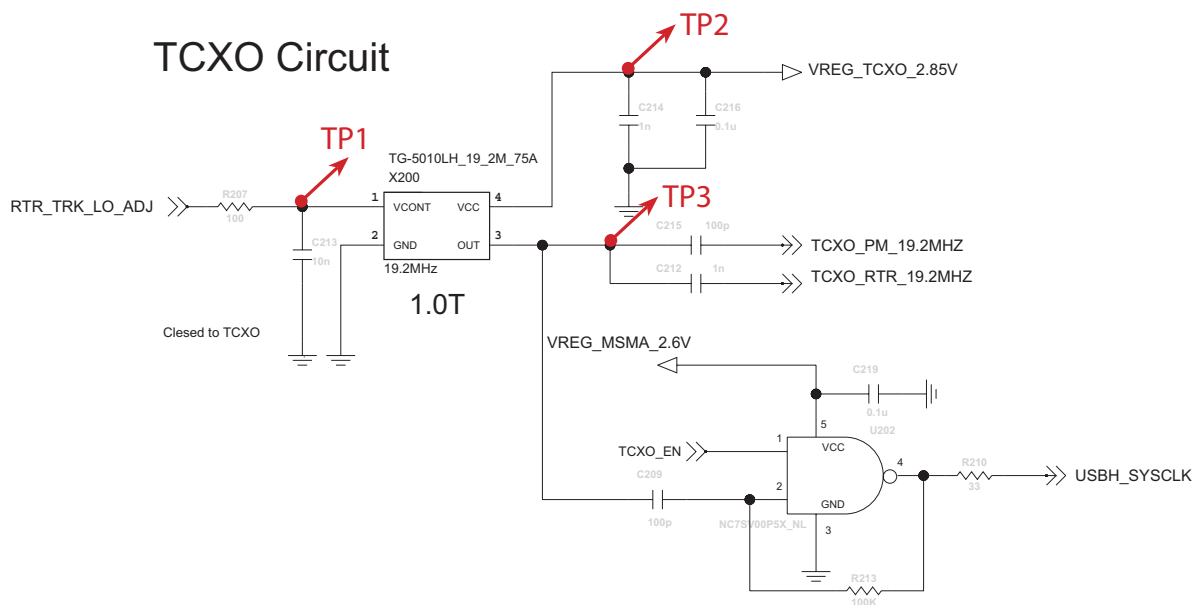
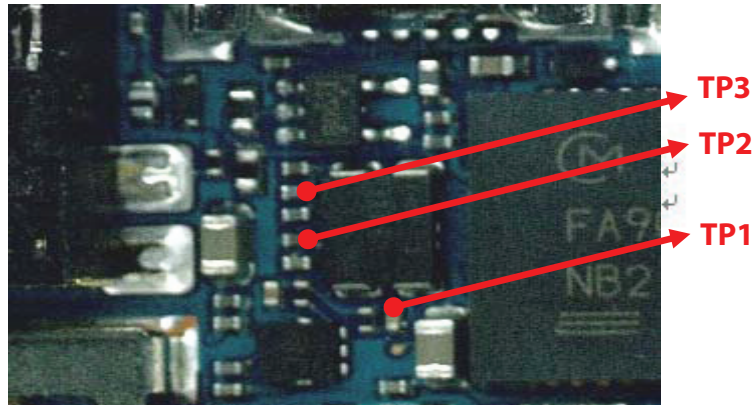


GPS Signal PATH
F. GPS Rx PATH

4. TROUBLE SHOOTING

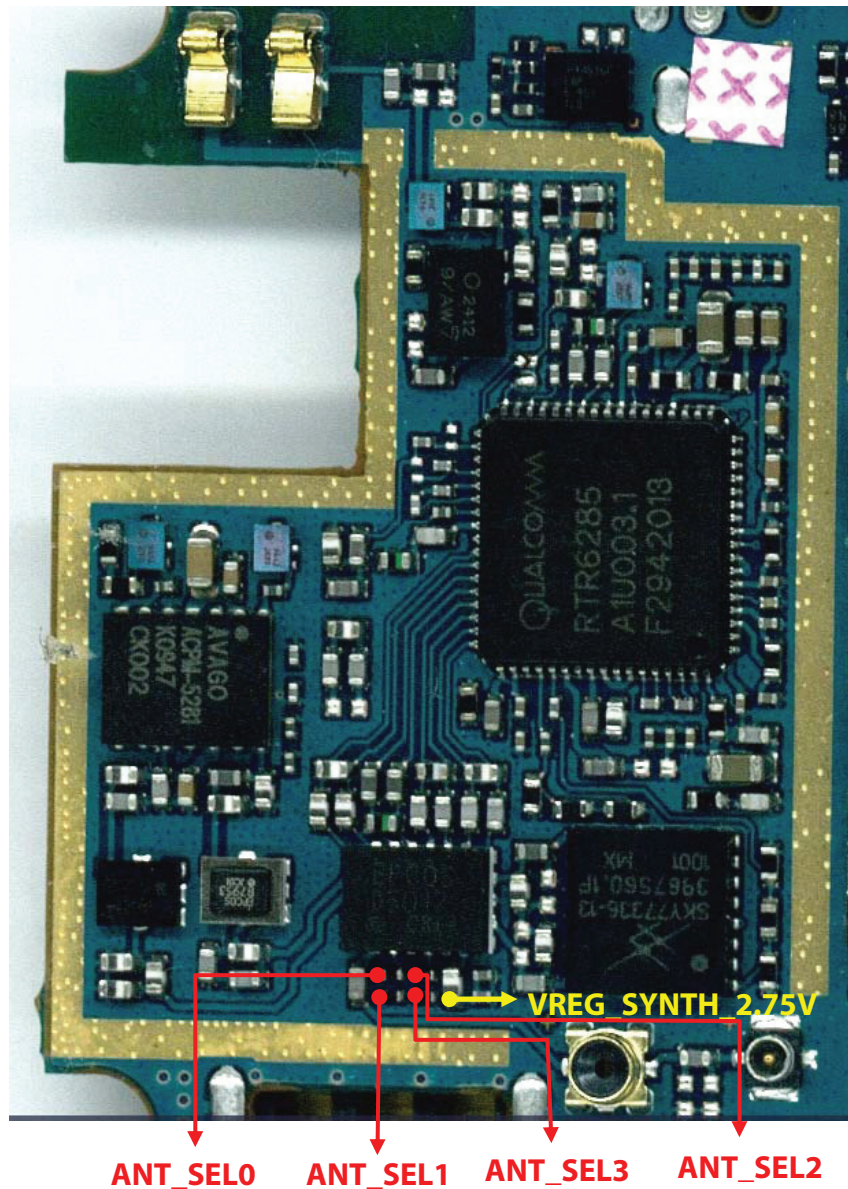
4.3 Checking TCXO Block

The output frequency (19.2MHz) of TCXO (X200) is used as the reference one of RTR6285 and PM7540 internal VCO

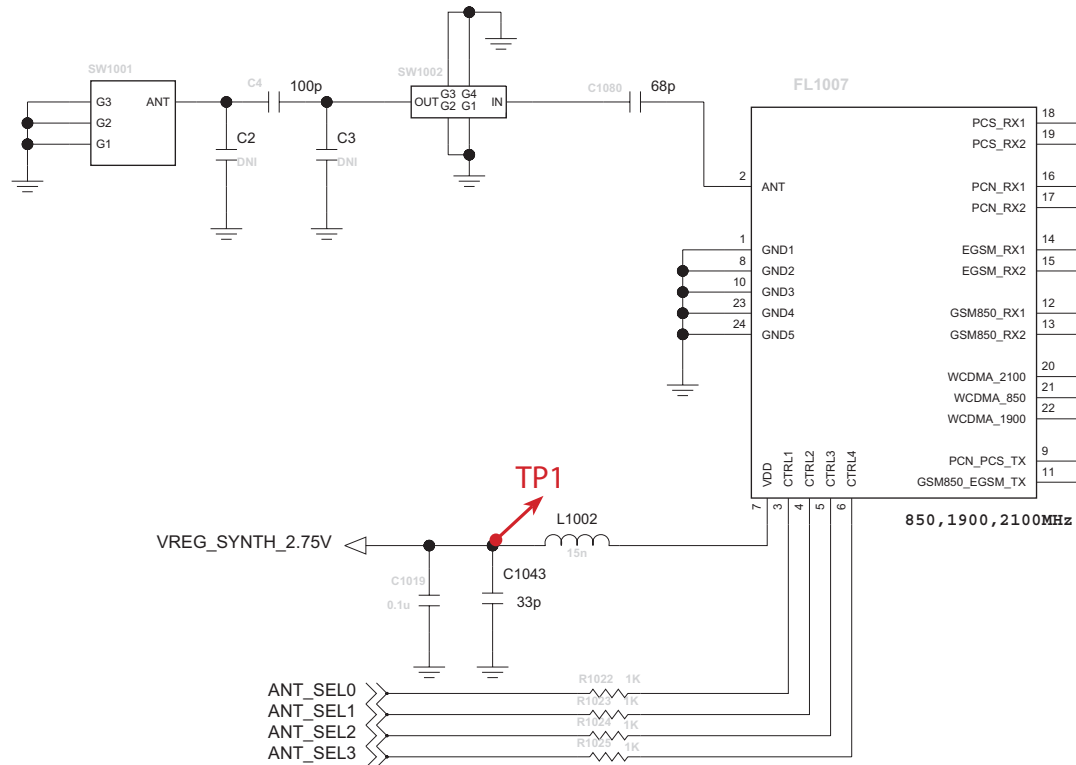


Schematic of the Crystal Part (19.2MHz)

4.4 Checking FEM Block



4. TROUBLE SHOOTING

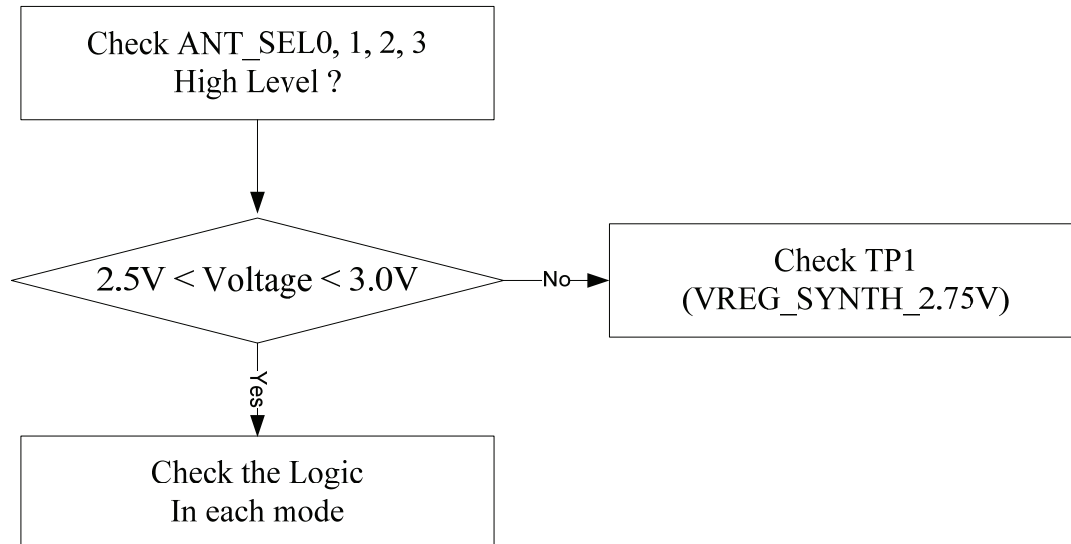


Schematic of the Antenna Switch Block

ANTENNA SWITCH MODULE LOGIC

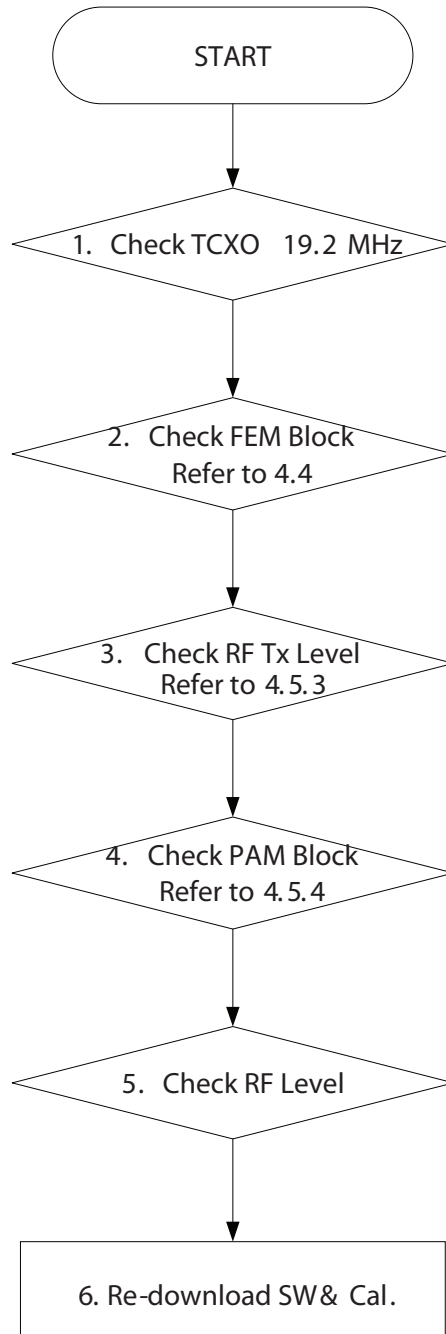
	ANT_SEL0	ANT_SEL1	ANT_SEL2	ANT_SEL3
GSM850/EGSM TX	HIGH	HIGH	LOW	LOW
DCS/PCS TX	HIGH	LOW	LOW	LOW
GSM850 RX	LOW	HIGH	HIGH	LOW
EGSM RX	LOW	LOW	HIGH	LOW
DCS1800 RX	LOW	HIGH	LOW	LOW
PCS1900 RX	LOW	LOW	LOW	LOW
WCDMA 900 (UMTS1)	LOW	LOW	HIGH	HIGH
WCDMA 2100 (UMTS2)	LOW	HIGH	LOW	HIGH

Checking Switch Block Power Source



4. TROUBLE SHOOTING

4.5 Checking WCDMA Block



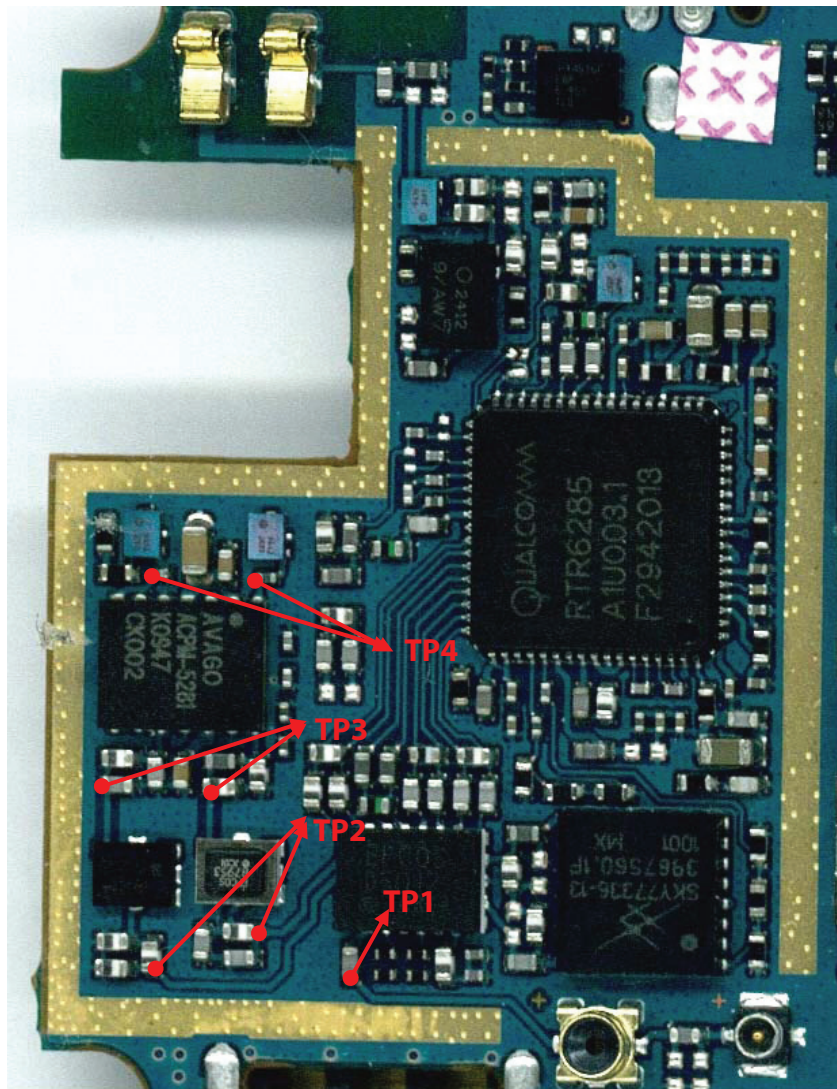
4.5.1 Checking TCXO Block

refer to 4.3

4.5.2 Checking FEM Block

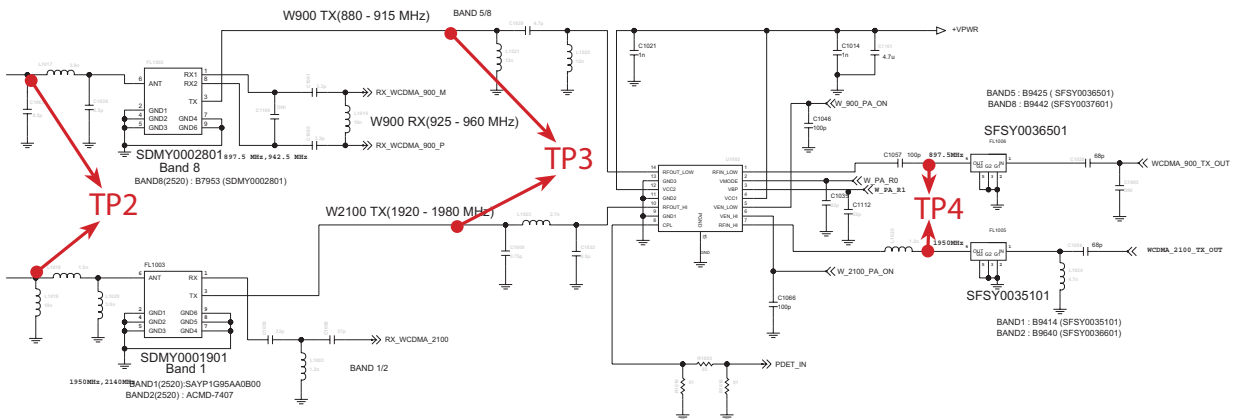
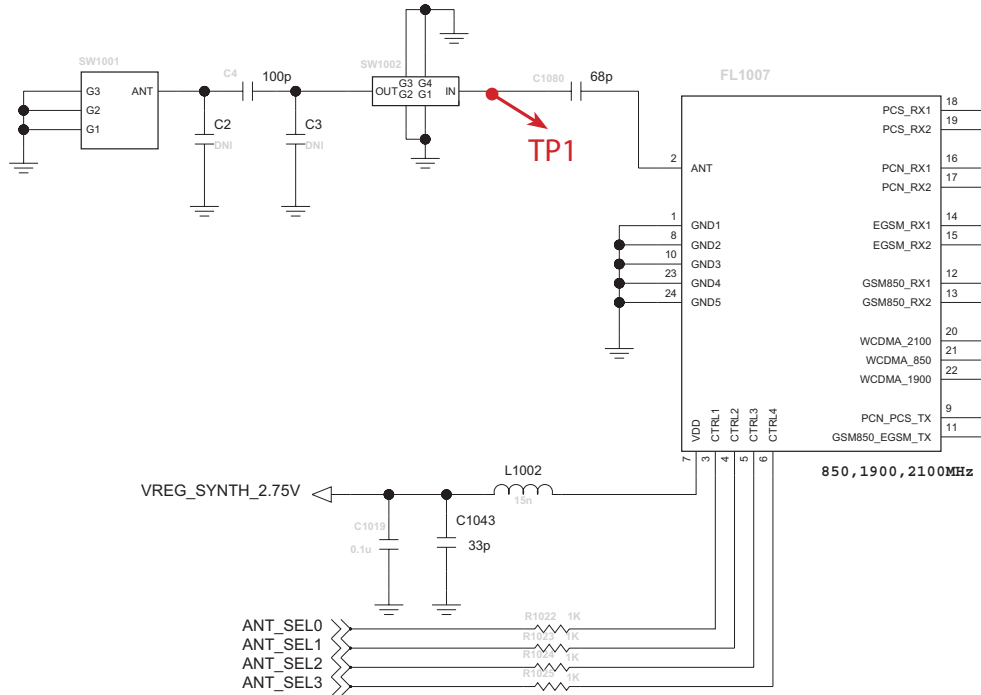
refer to 4.4

4.5.3 Checking RF TX Level



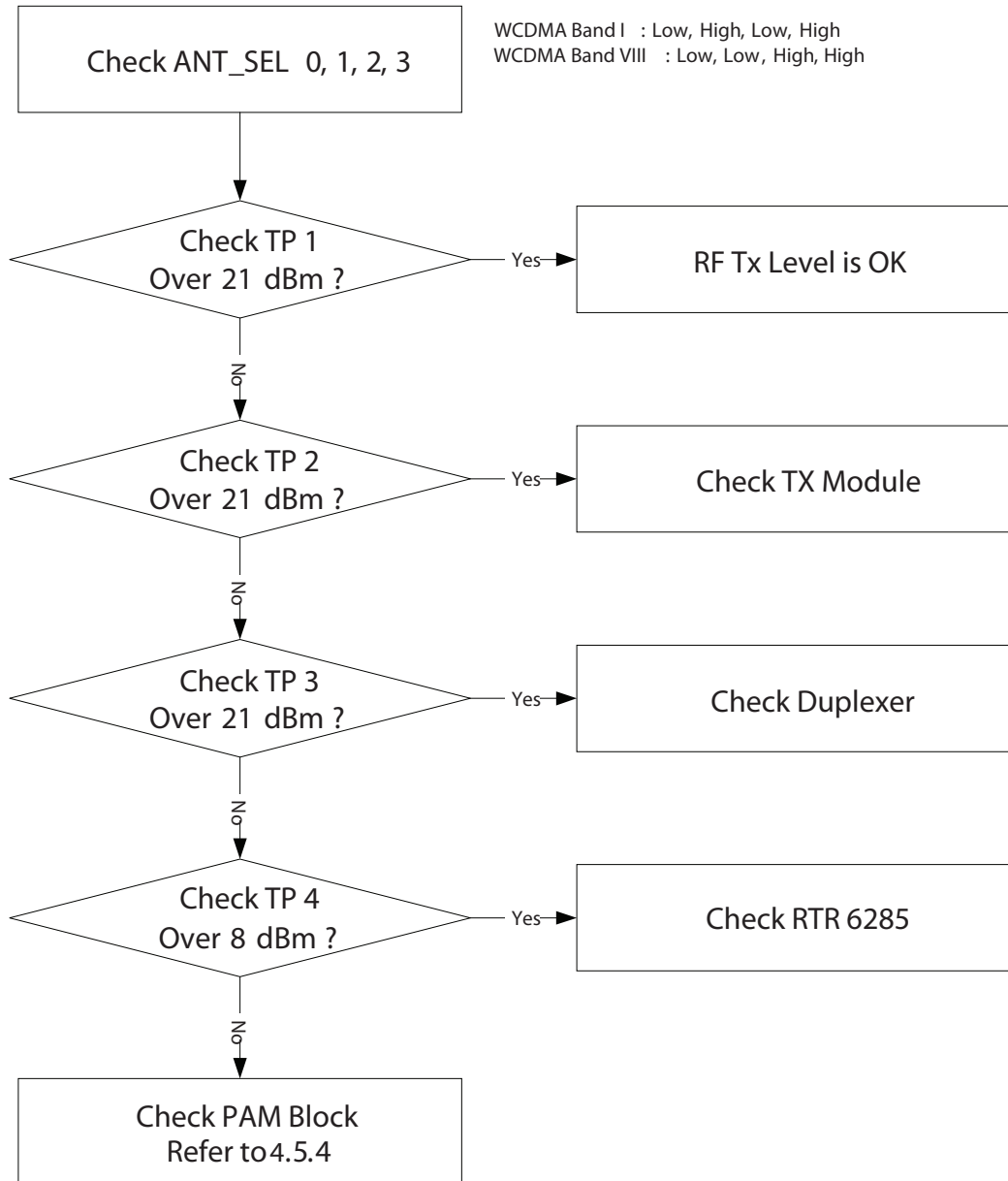
Test Point (TX Level)

4. TROUBLE SHOOTING



For testing, Max power output is needed.

4. TROUBLE SHOOTING



RTR 6285 Maximum output Power= 7 dBm

RTR 6285 minimum output Power= -80 dBm

PAM (ACPM 5281) = Maximum input Power= 8 dBm(High Power Mode), 5 dBm(Low Power Mode)

4. TROUBLE SHOOTING

4.5.4 Checking PAM Block

PAM control signal

W2100_PA_ON, W900_PA_ON : PAM Enable

W_PA_RO : PAM Gain Control

W_PA_R1 must be LOW (under 2.6V) : Use 2 stage gain

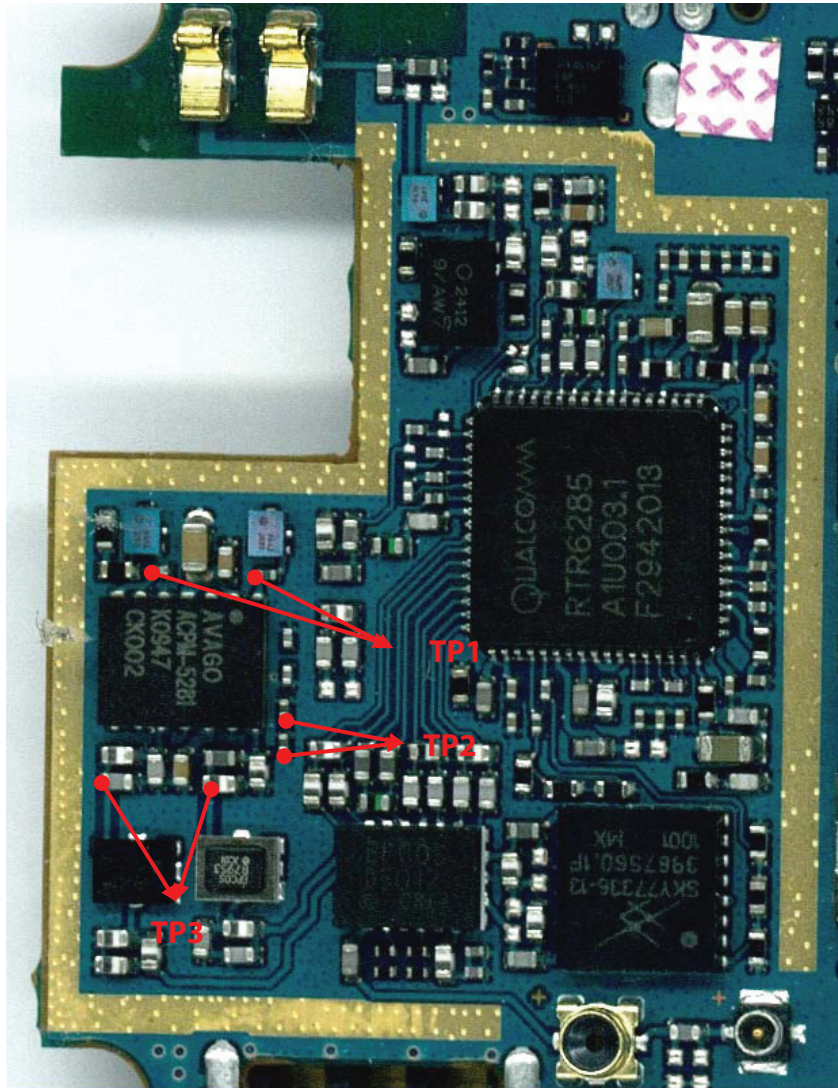
PAM Enable must be HIGH (over 2.6V)

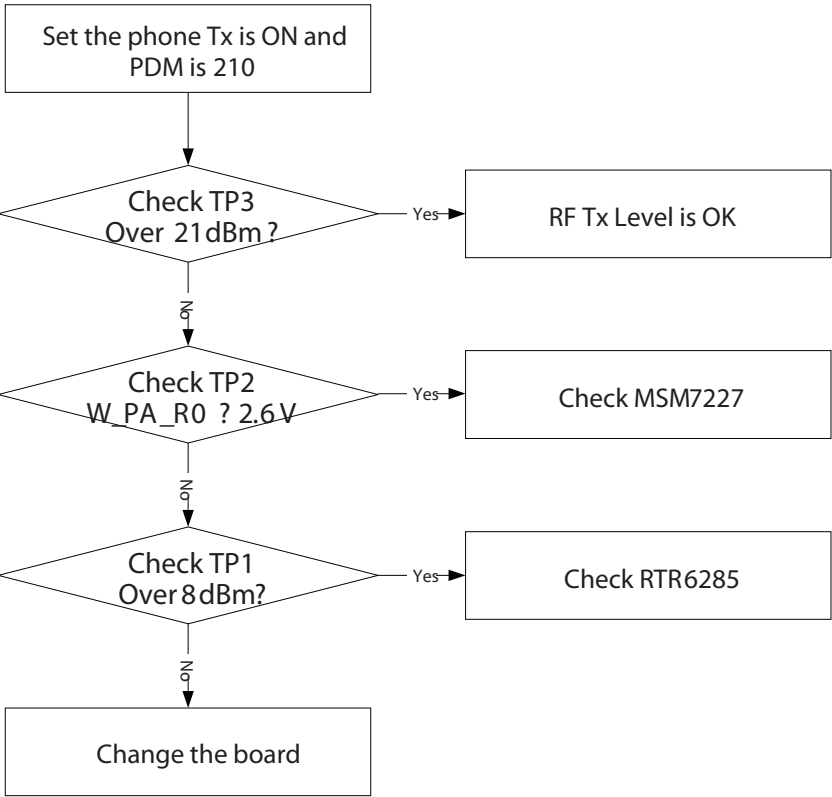
PAM IN/OUT Signal :

When PAM is under the operation of high power mode (W_PA_R0 :Low),

PAM OUT power must be over 21 dBm

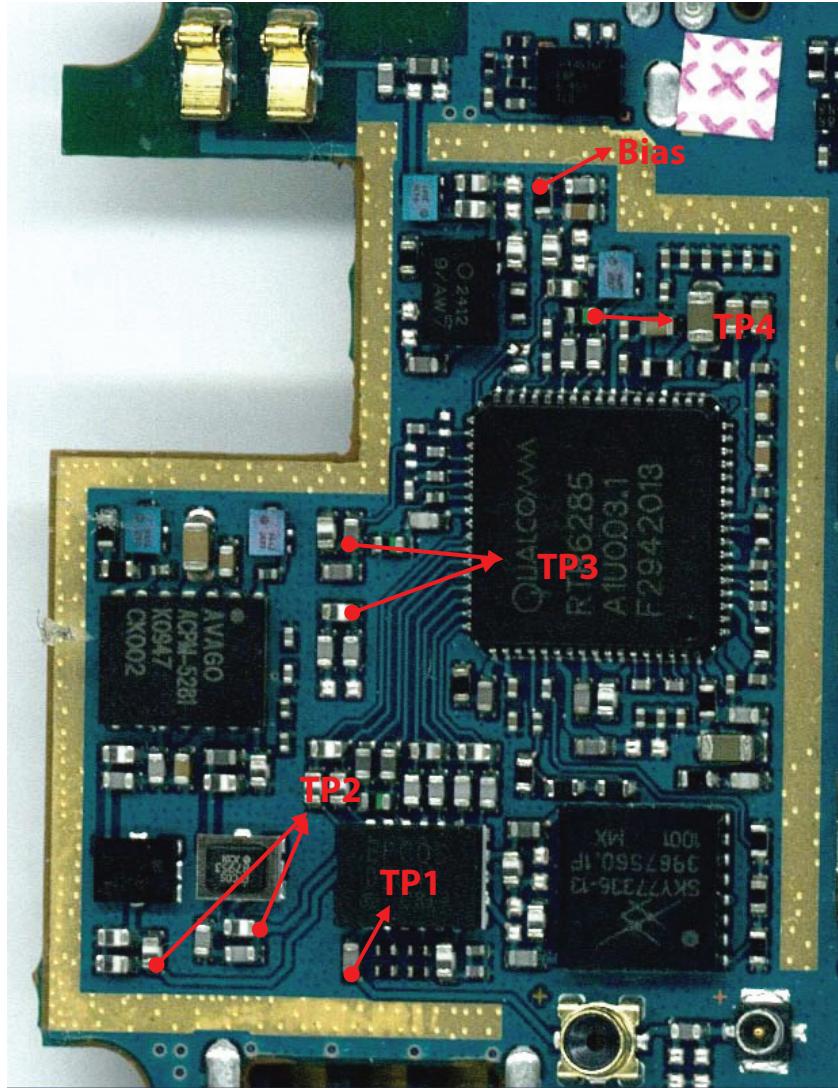
PAM IN power must be under 8 dBm





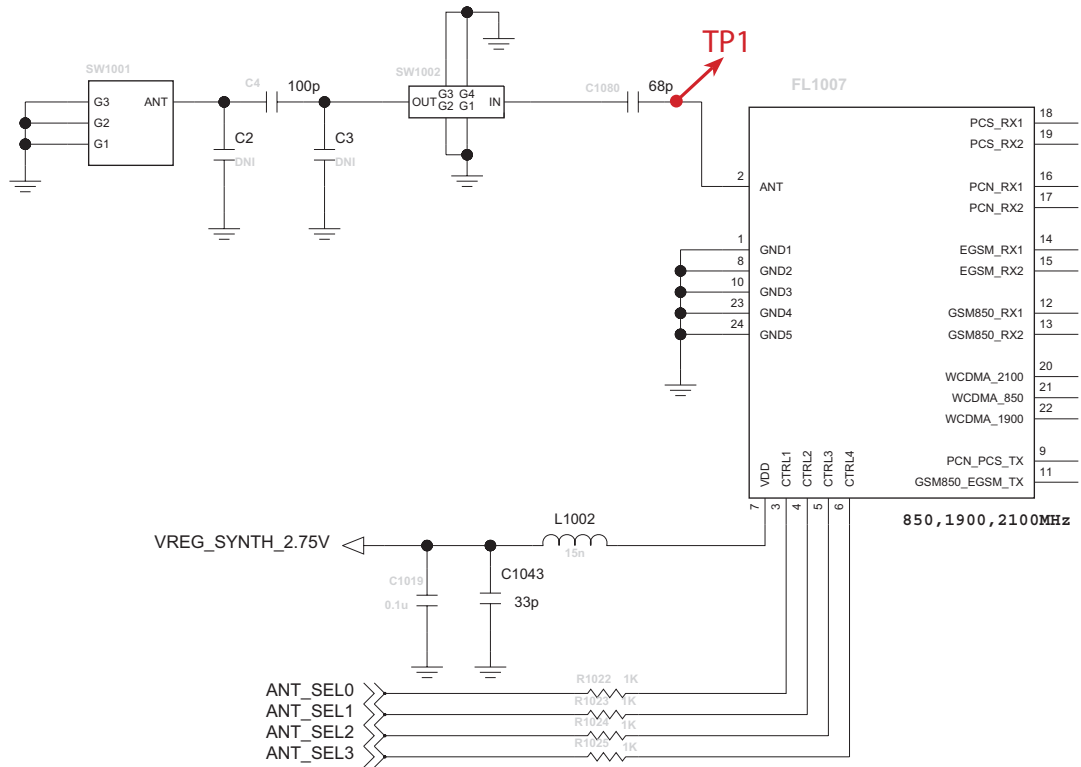
4. TROUBLE SHOOTING

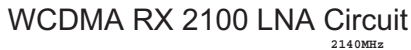
4.5.5 Checking RF Rx Level

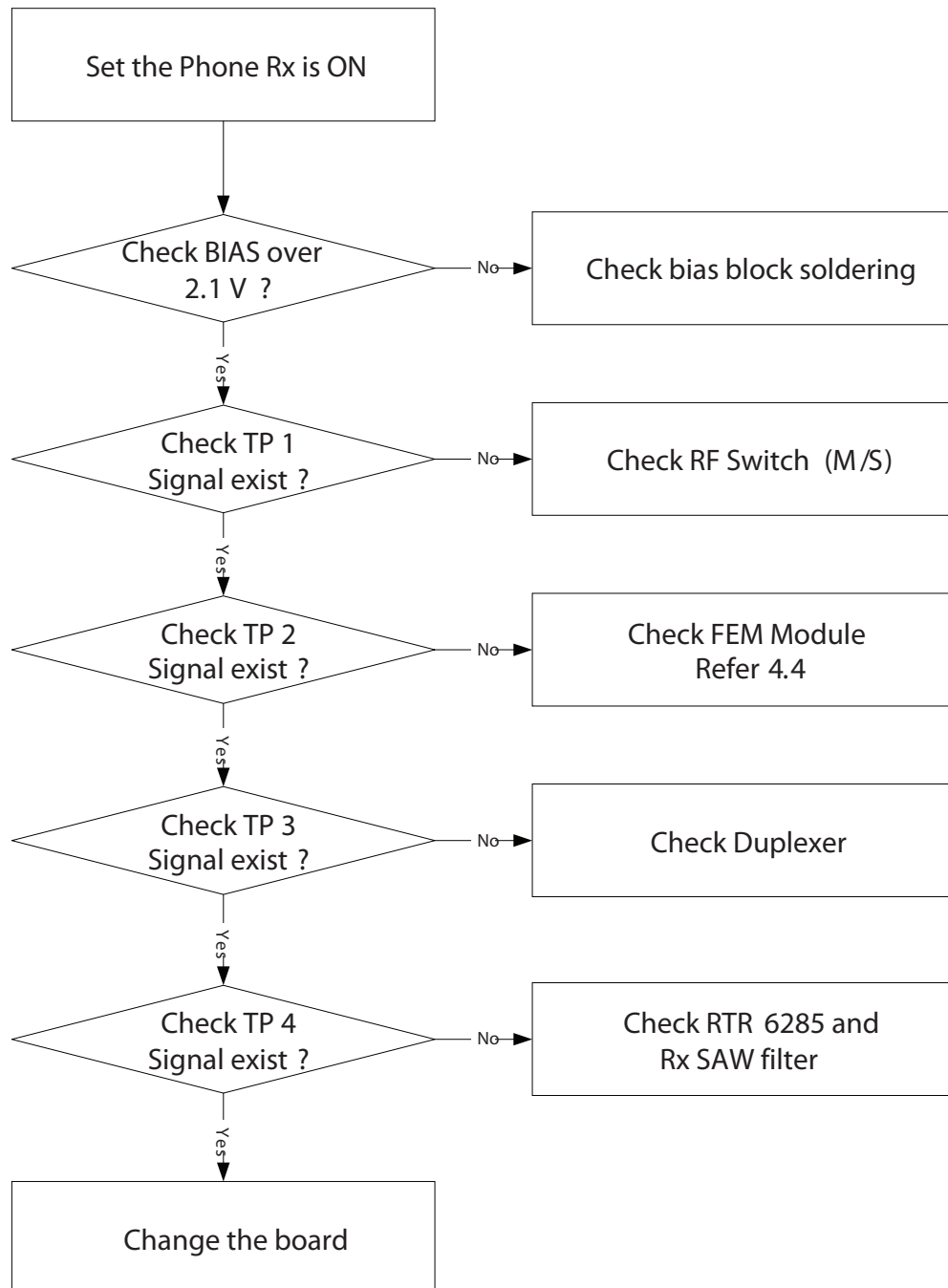


Test Point (RF Rx Level)

4. TROUBLE SHOOTING

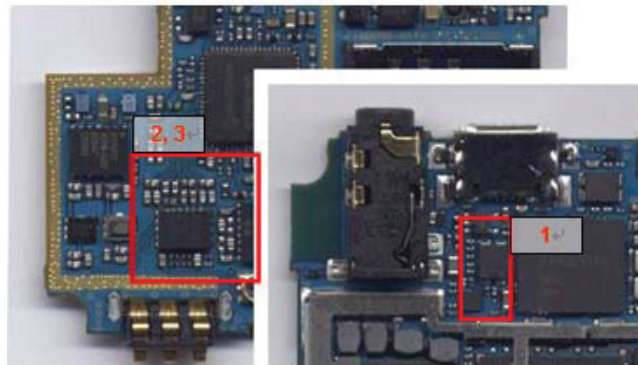
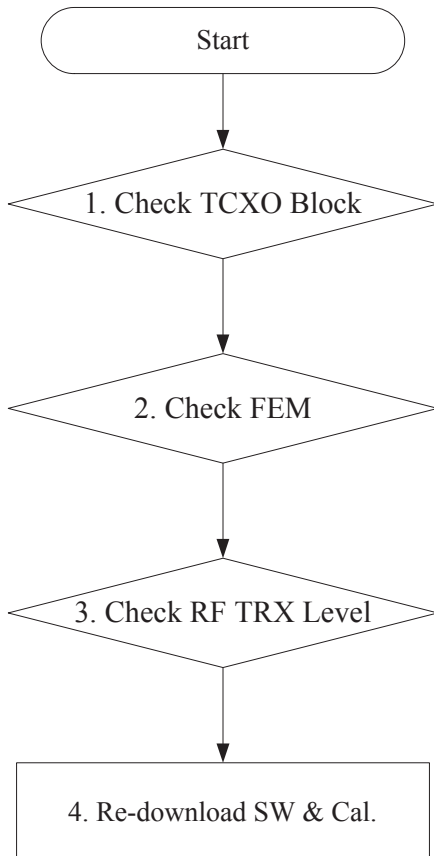






4. TROUBLE SHOOTING

4.6 Checking GSM Block



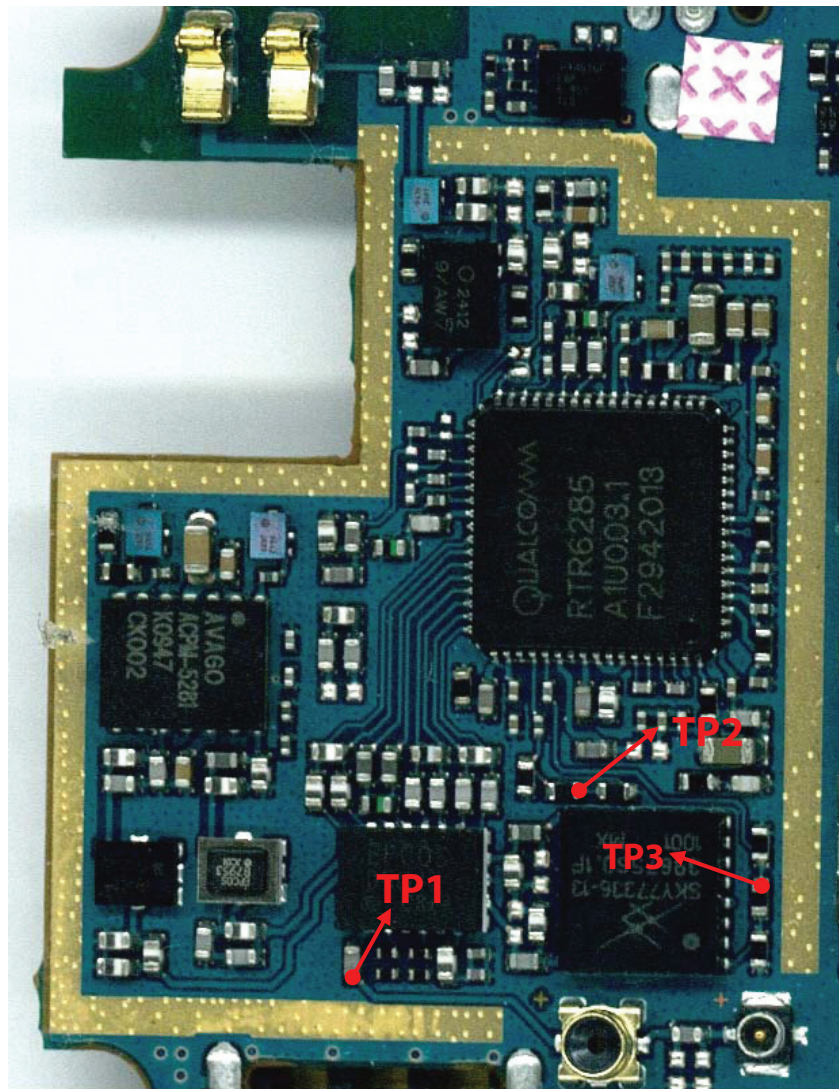
4.6.1 Checking TCXO Block

refer to 4.3

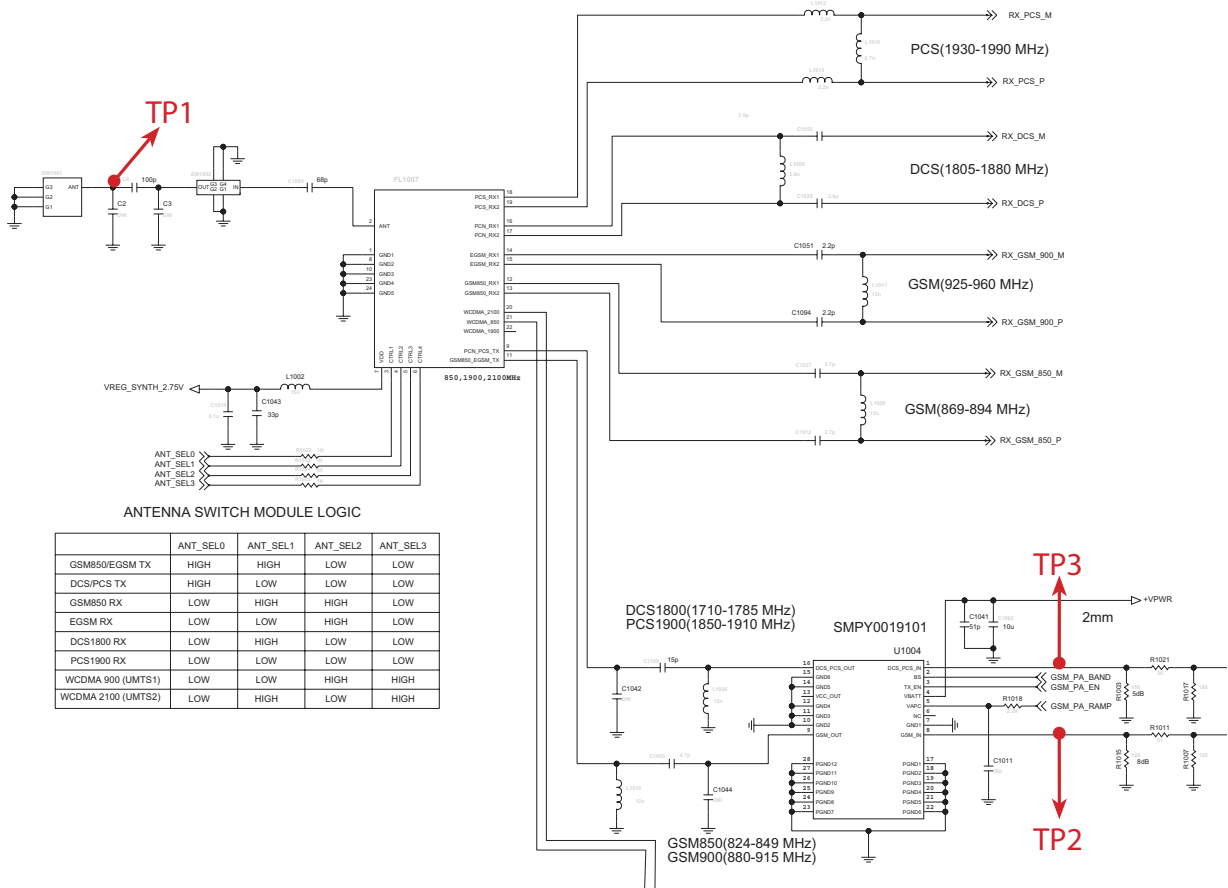
4.6.2 Checking FEM Block

refer to 4.4

4.6.3.1 Checking RF TX Level

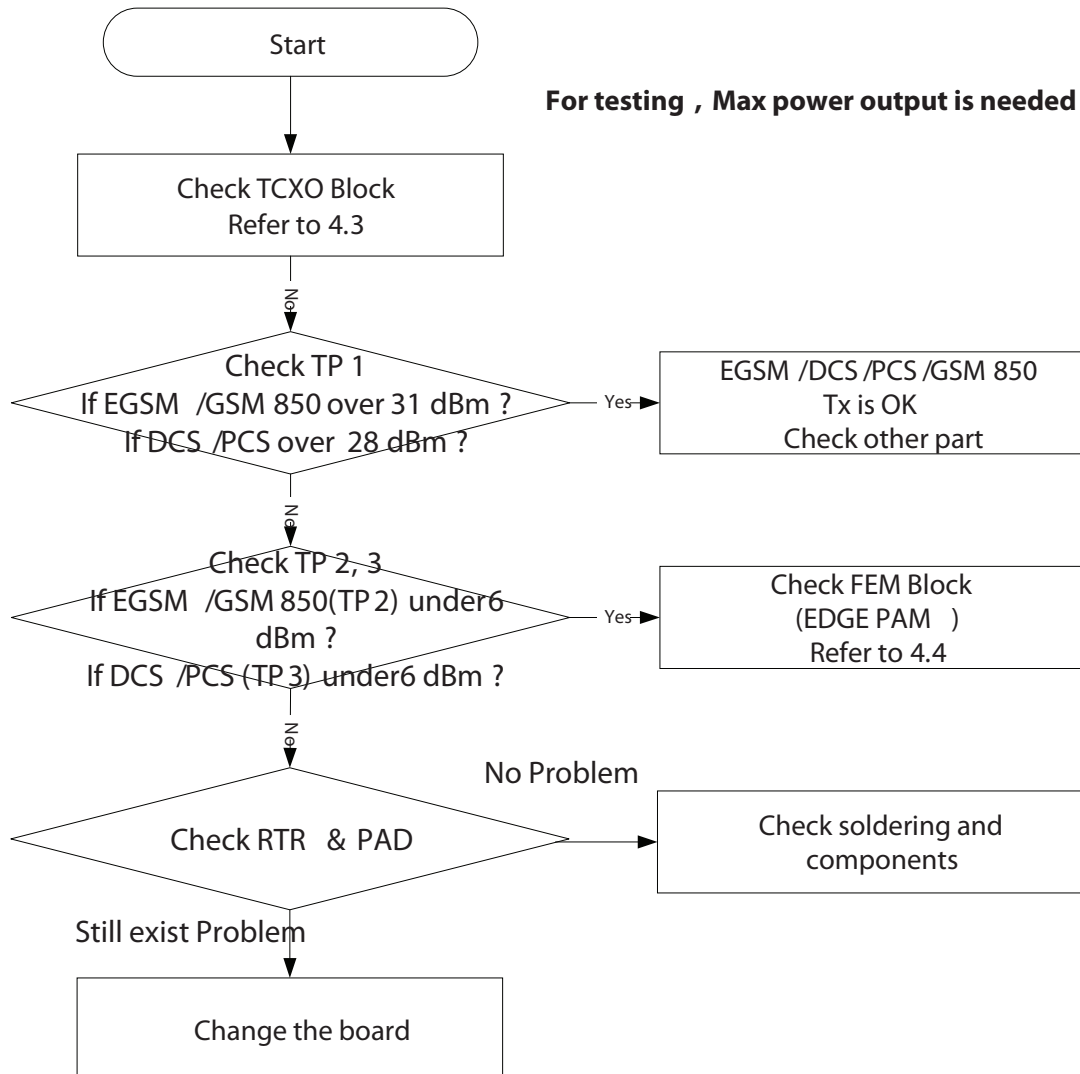


4. TROUBLE SHOOTING



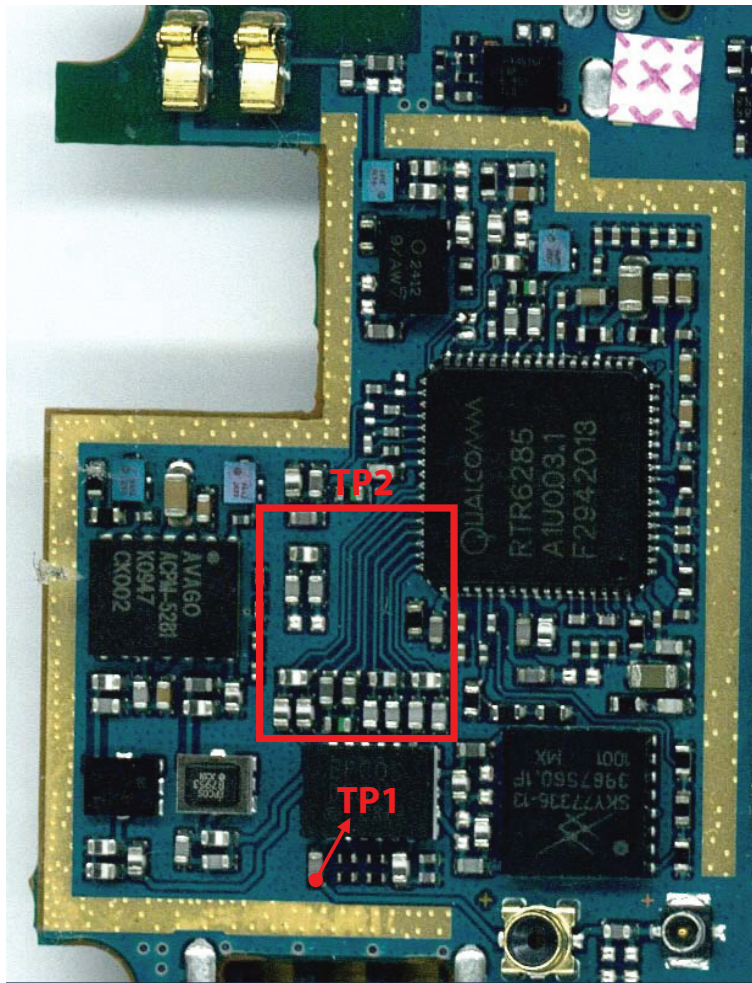
Schematic of GSM850/GSM900/DCS/PCS TX Block

4. TROUBLE SHOOTING



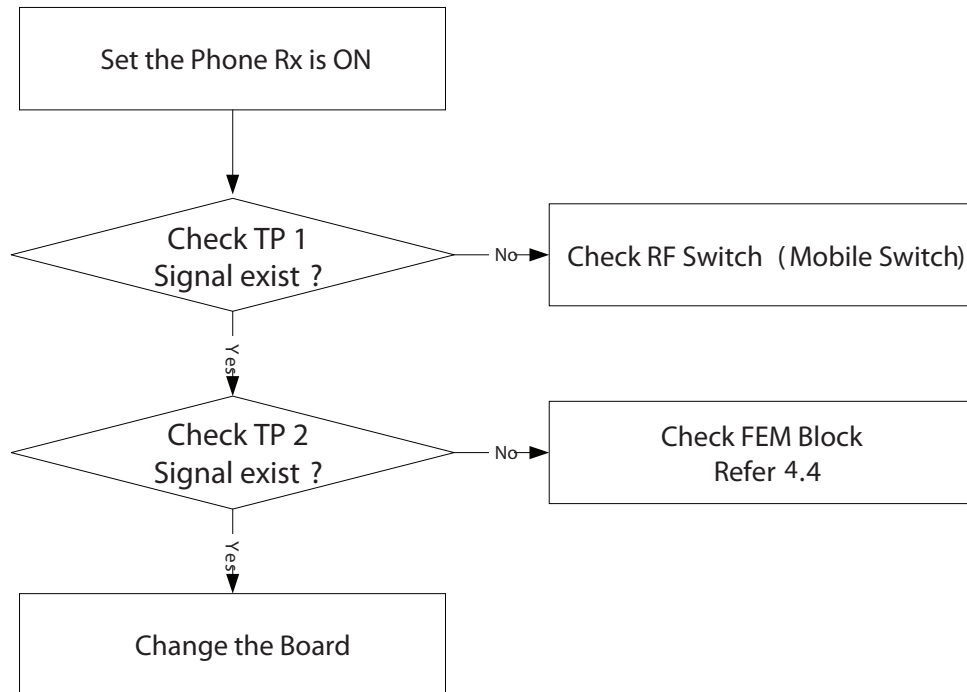
4. TROUBLE SHOOTING

4.6.3.2 Checking RF RX Level

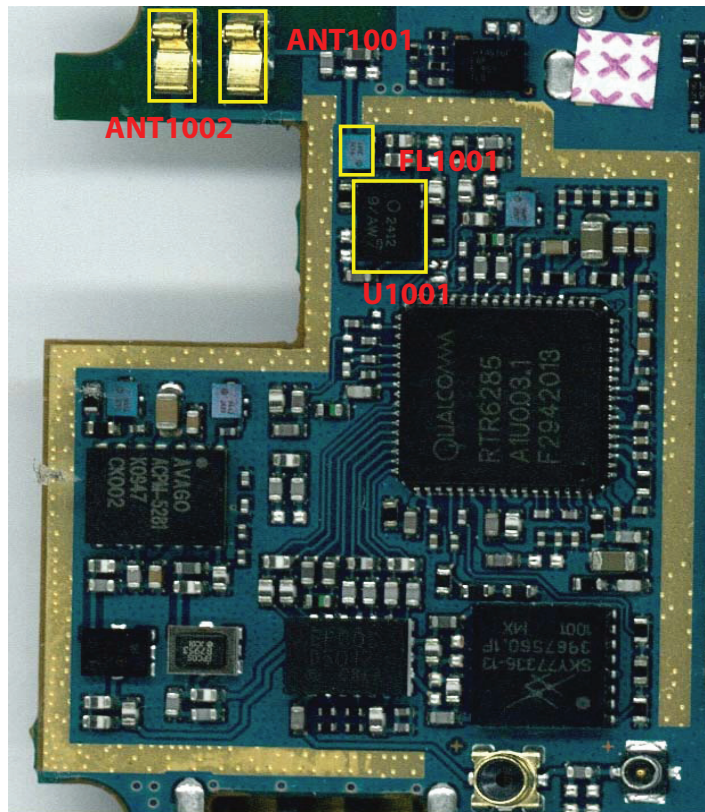




4. TROUBLE SHOOTING



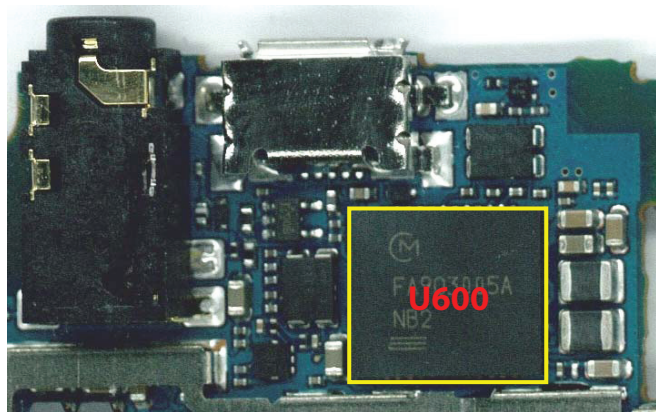
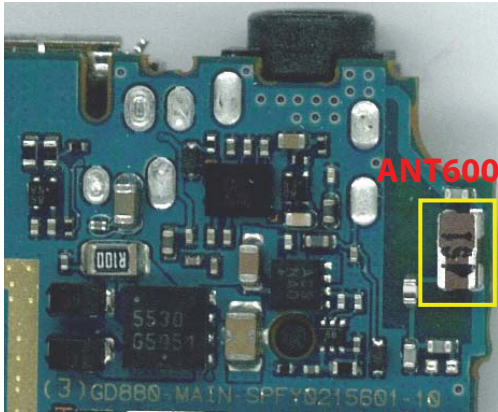
4.7 GPS/WIFI/BT/FM Radio RF components



RF component (GPS)

Reference	Description
ANT1001	ANTENNA PAD
ANT1002	GND PAD
FL1001	GPS SAW FILTER
U1001	GPS LNA

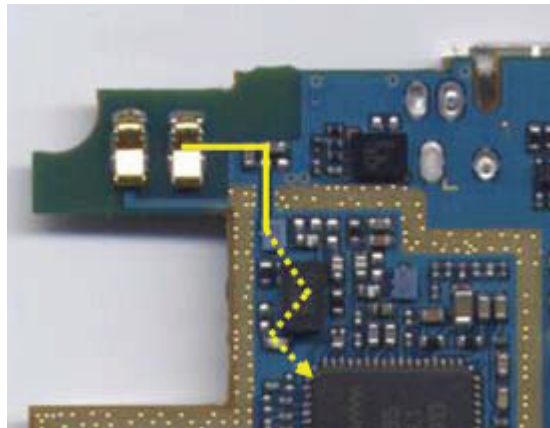
4. TROUBLE SHOOTING



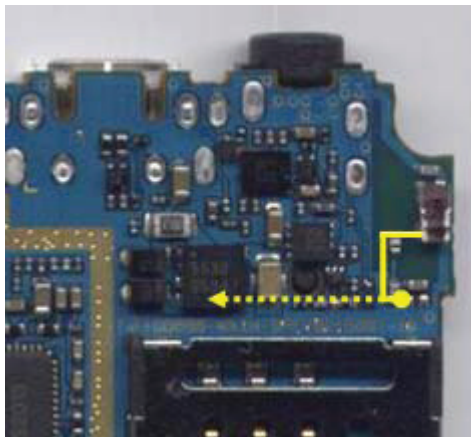
RF component (WiFi / BT /FM Radio)

Reference	Description
ANT600	ANTENNA(chip Antenna)
U600	Wifi/BT/FM Combo Chip

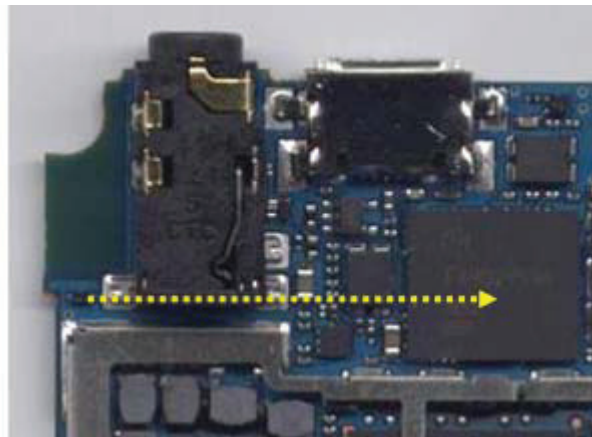
4.8 GPS/WIFI/BT/FM Radio SIGNAL PATH



RF component (GPS)



WIFI/BT SIGNAL PATH

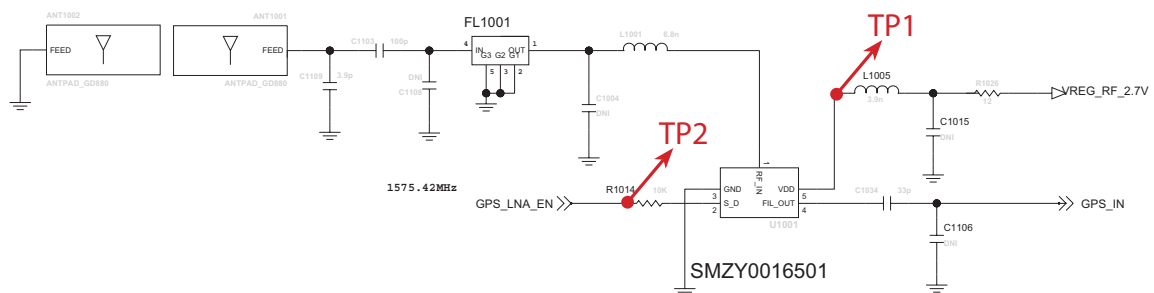
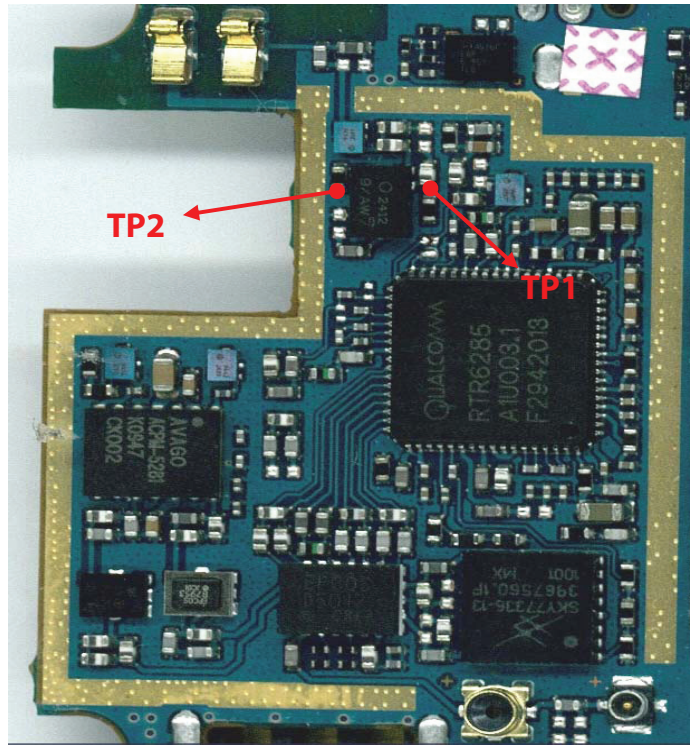


FM Radio SIGNAL PATH

4. TROUBLE SHOOTING

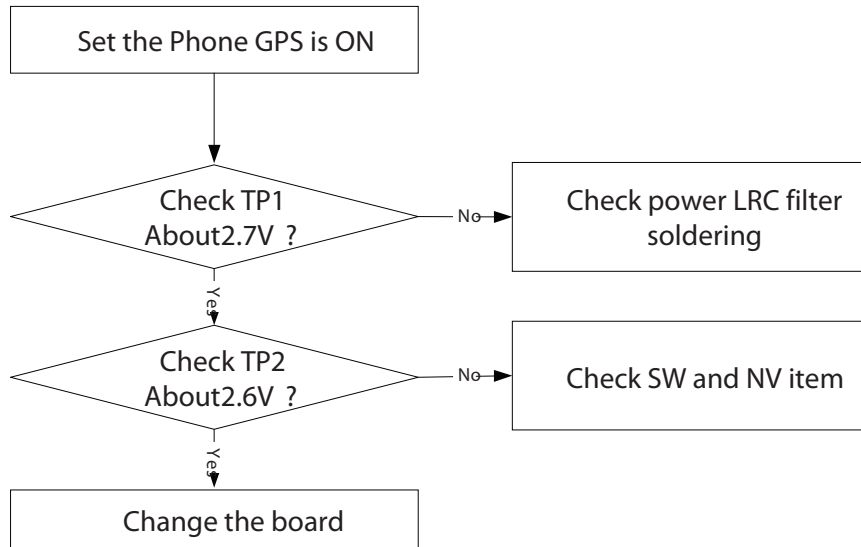
4.9 GPS/WIFI/BT/FM Radio TROUBLE SHOOTING

4.9.1 A-GPS Block



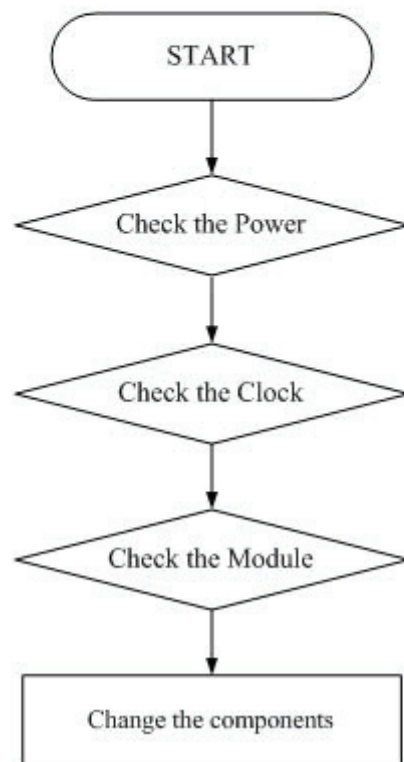
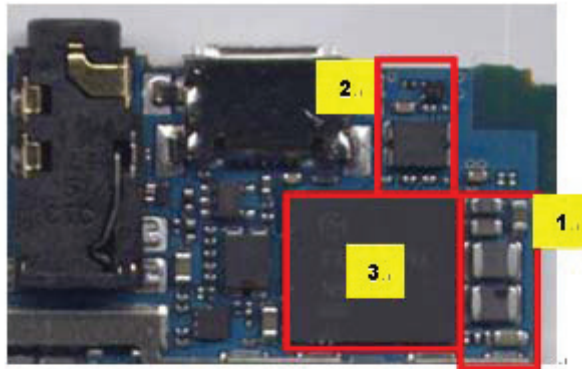
Schematic of A-GPS Block

4. TROUBLE SHOOTING

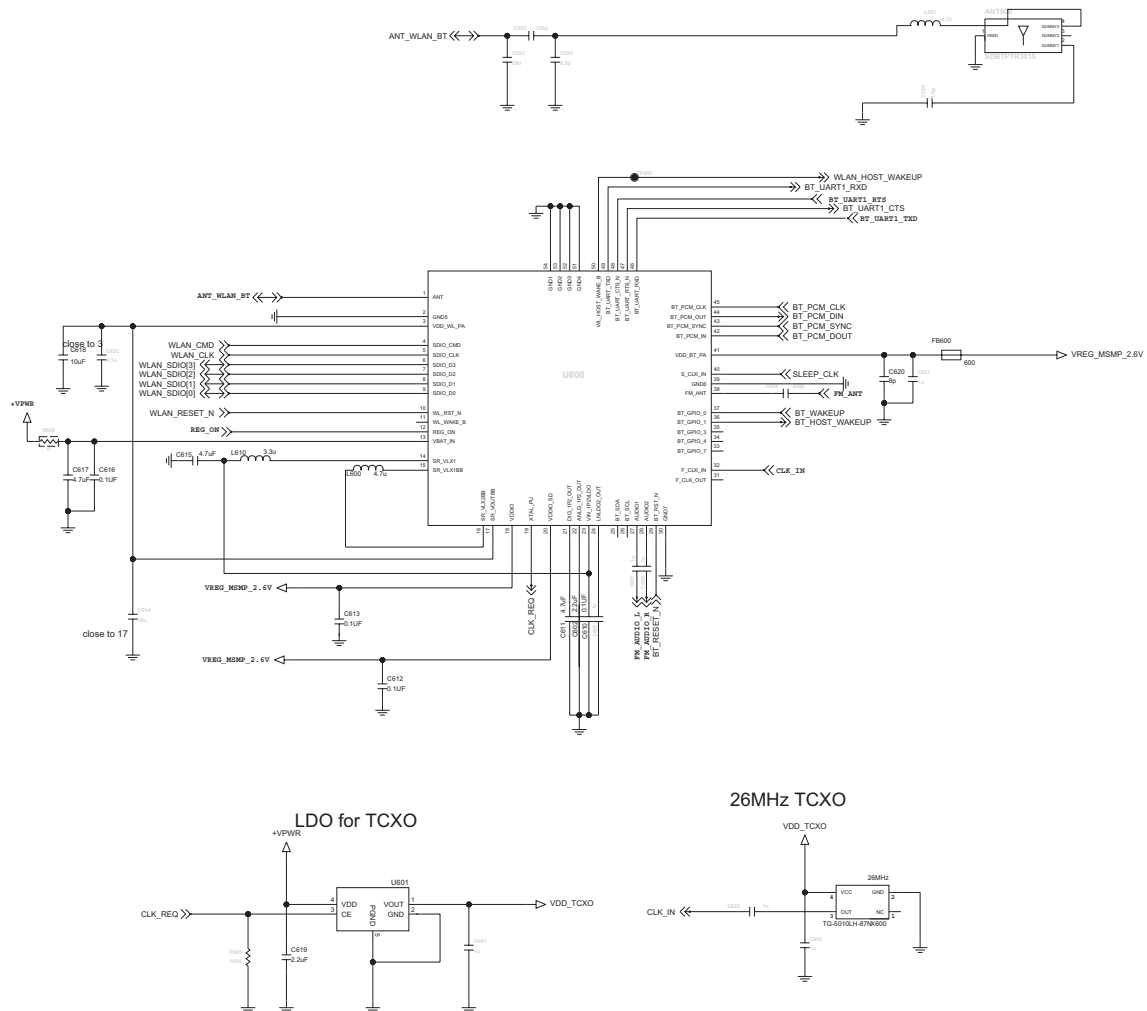


4. TROUBLE SHOOTING

4.9.2 WIFI/BT/FM Radio Block

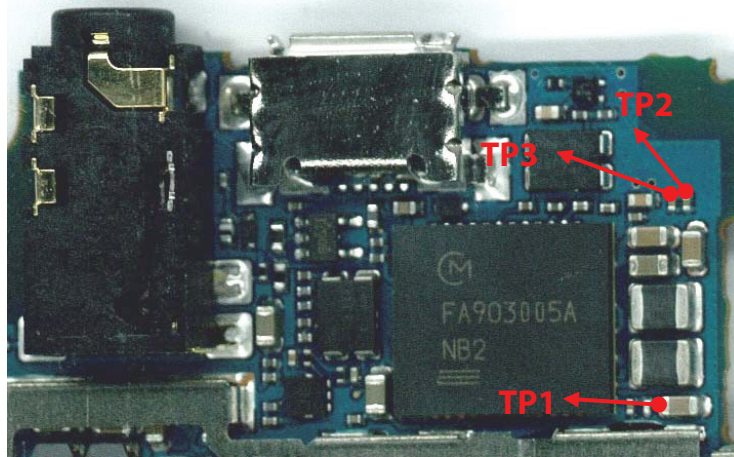


4.9.2.1 WIFI/BT/FM Radio Module Part



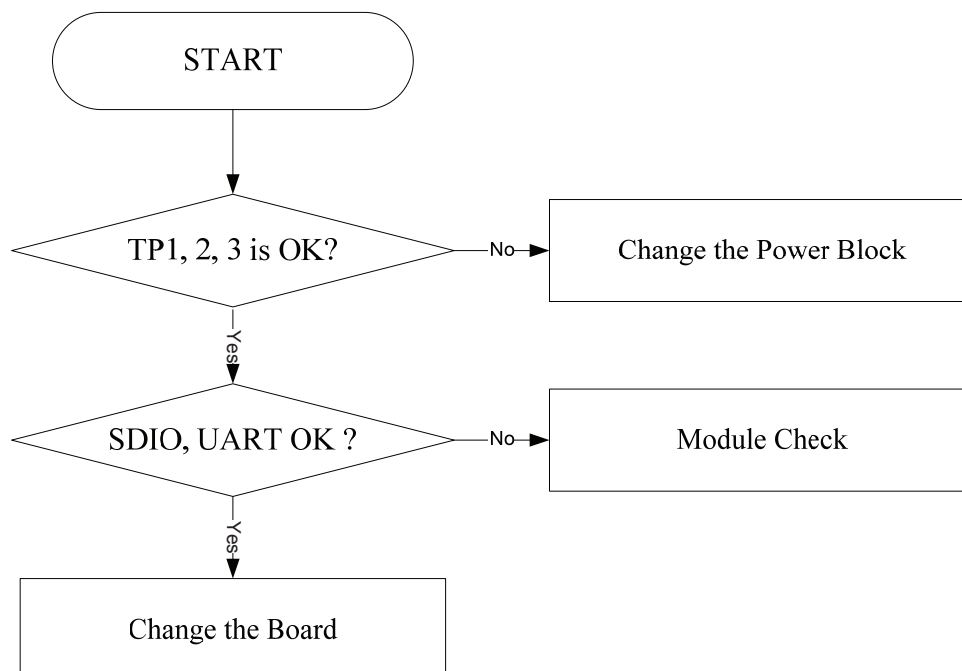
Schematic of WIFI/BT Module

4. TROUBLE SHOOTING

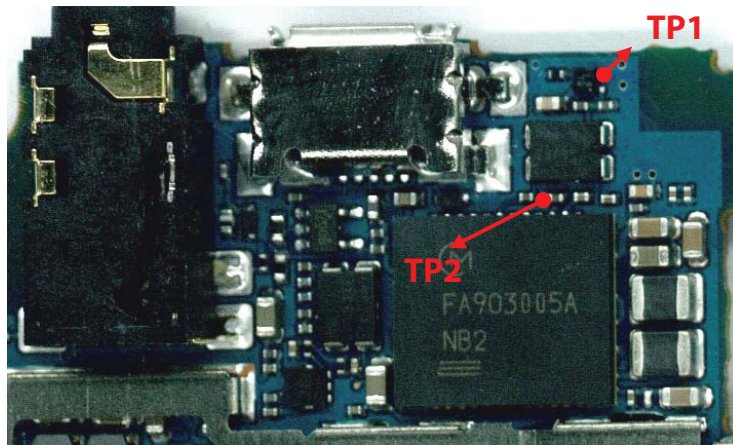
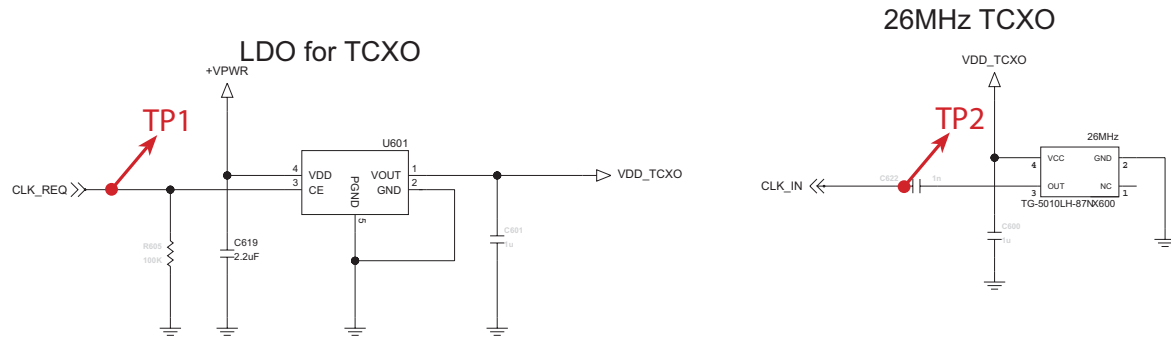


Test Point DescQription

Test Point	Net Name	Description
TP1	+VPWR	Power for BT/Wifi BB core and Wifi Power Amp.
TP2	VREG_MSMP_2.6V	Power for BT Power Amp (2.6V)
TP3	VREG_MSMP_2.6V	Power for host interface (2.6V)



4.9.2.2 WIFI/BT/FM Radio Main Clock Part



Test Point Description

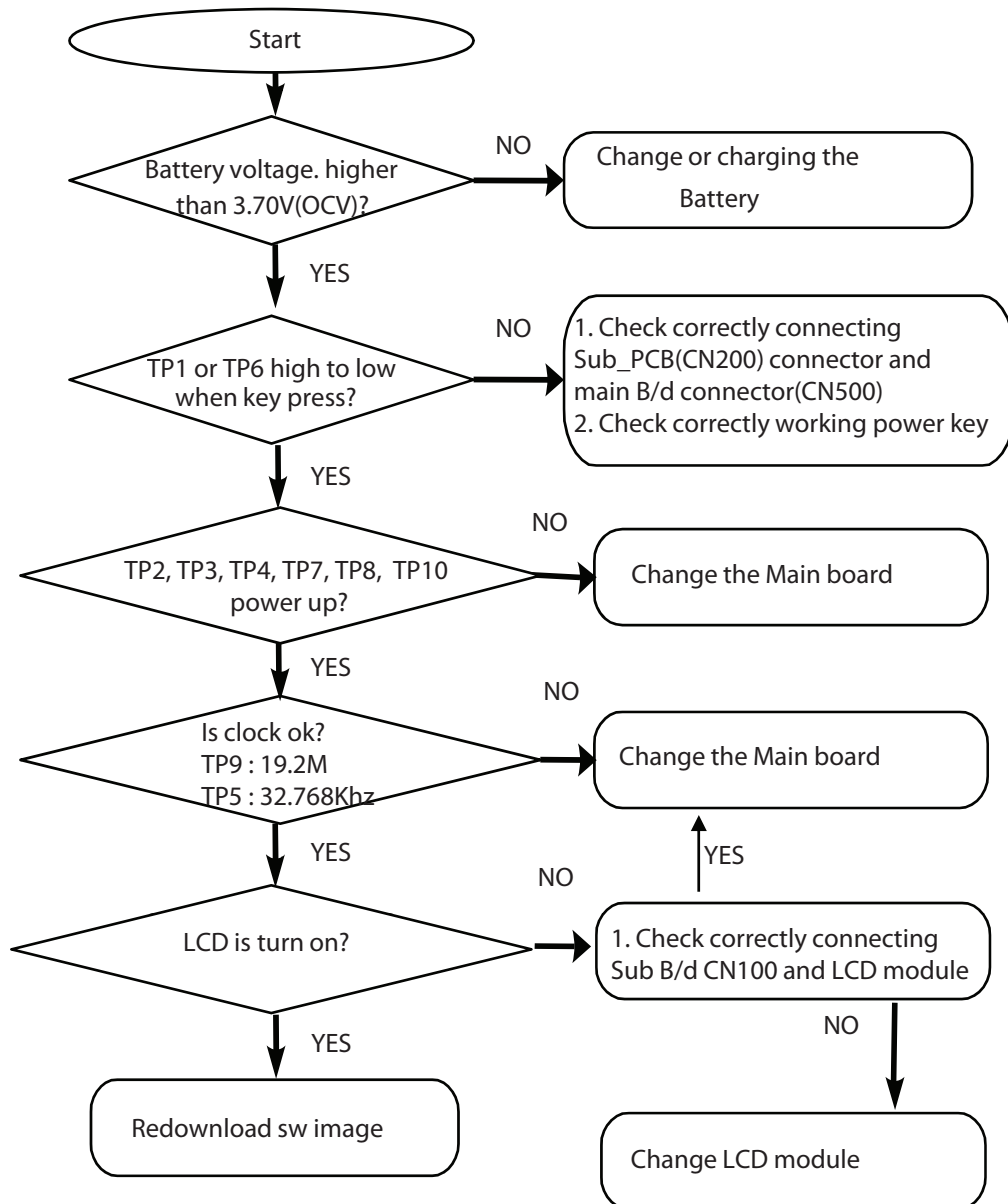
Test Point	Net Name	Description
TP1	CLK_REG	On/Off Control external clock source 0 : TCXO off 1 : TCXO on
TP2	CLK_IN	TCXO output clock : 26 MHz

4. TROUBLE SHOOTING

4.10 Power ON Troubleshooting

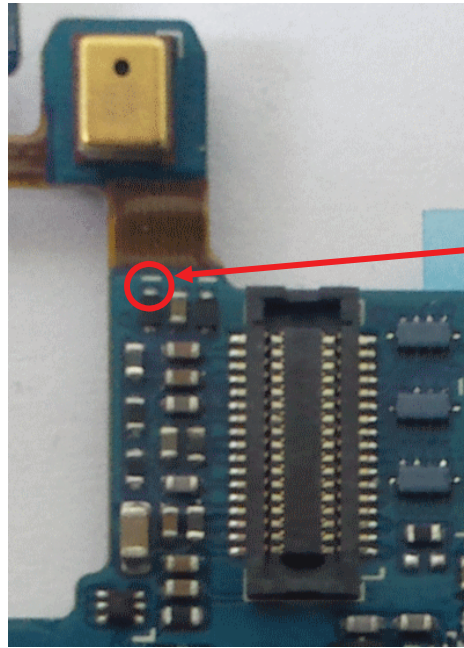
Power On sequence of GD880 is :

Power key press → PM_ON_SW(D302) go to low → PM7540 Power Up → VMSMC1_1.35V(C408), VMSMC2_1.25V(C420), VMSME_1.8V(C416), VMSMP_2.6V(C410), VMSMA_2.6V(C405), VTCXO_2.85V(C214) power ON → Phone booting and PS_HOLD(D400) go to High

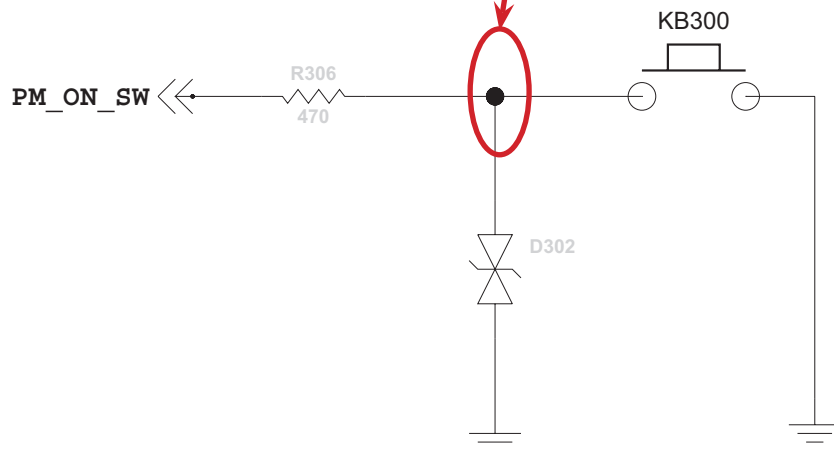


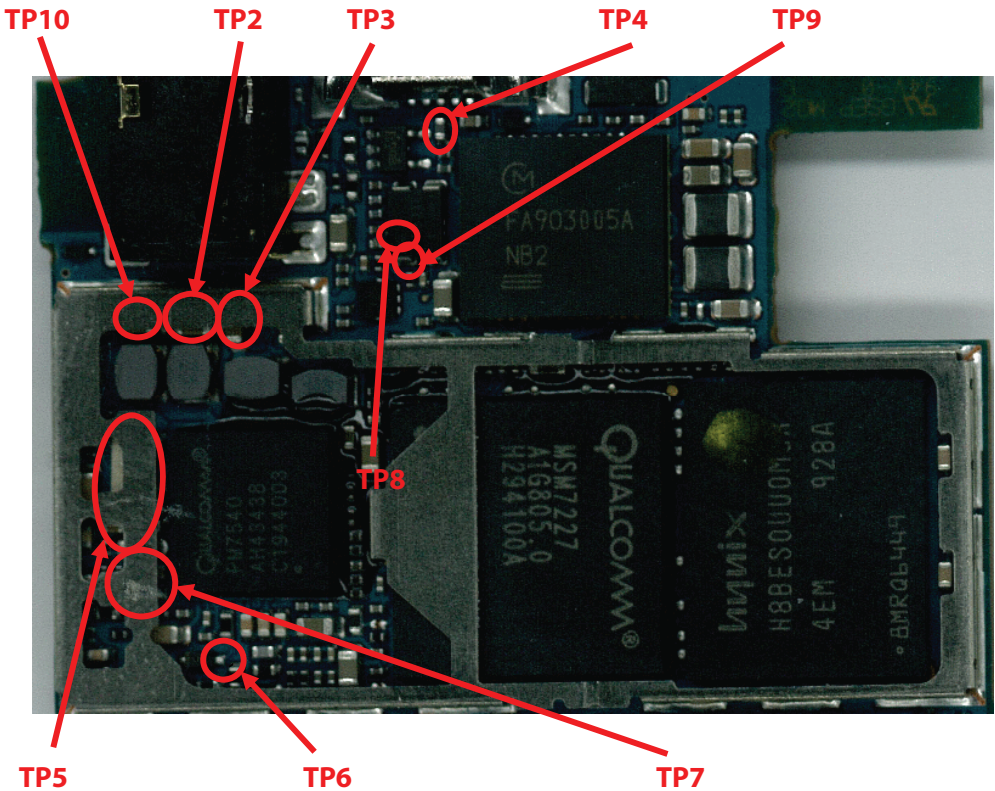
*OCV(open circuit voltage)

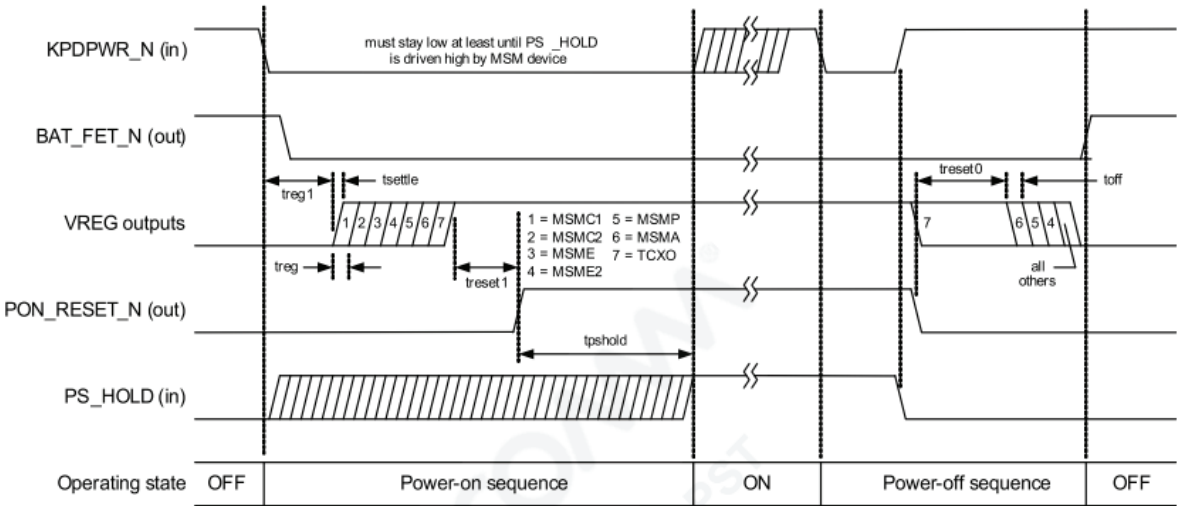
4. TROUBLE SHOOTING



TP1: go to low



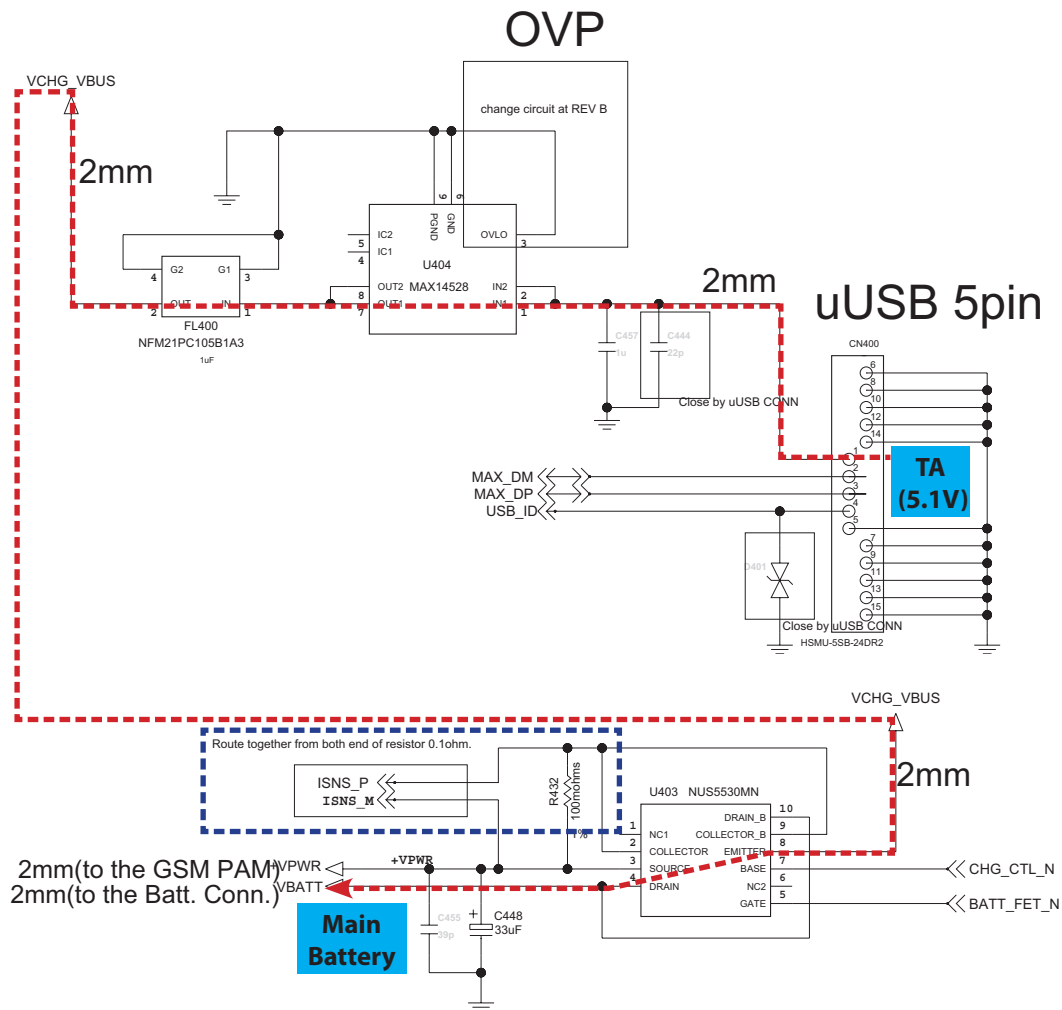




PM7540 Power sequence

4. TROUBLE SHOOTING

4.11 Charger Troubleshooting



Charging Current Flow

Charging Procedure

- Connect TA or u-USB Cable
- Control the charging current by PM7540 IC
- Charging current flows into the battery

Check Point

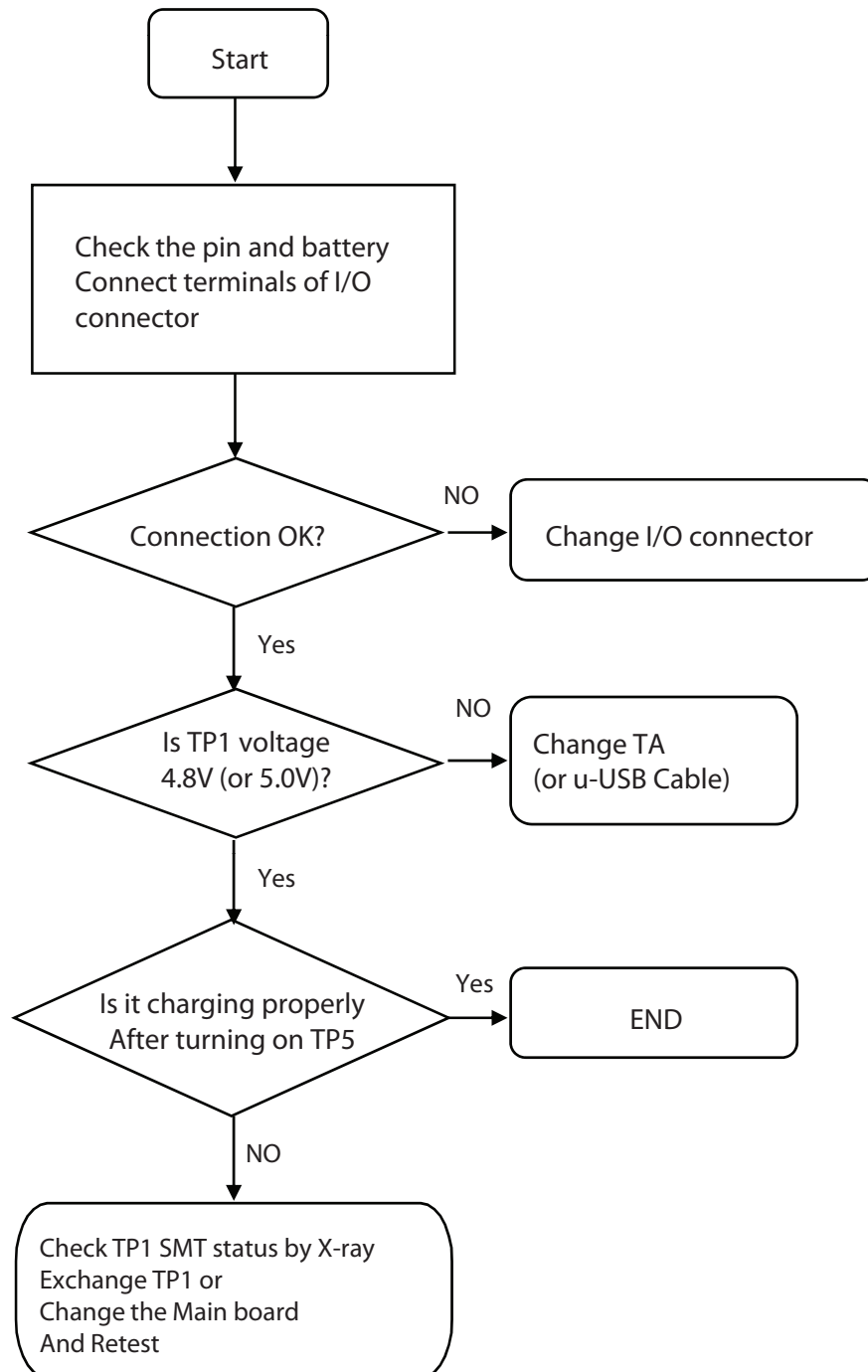
- Connection of TA or USB Cable
- Charging current path(NUS5530)
- Battery

Troubleshooting Setup

- Connect TA and battery to the phone

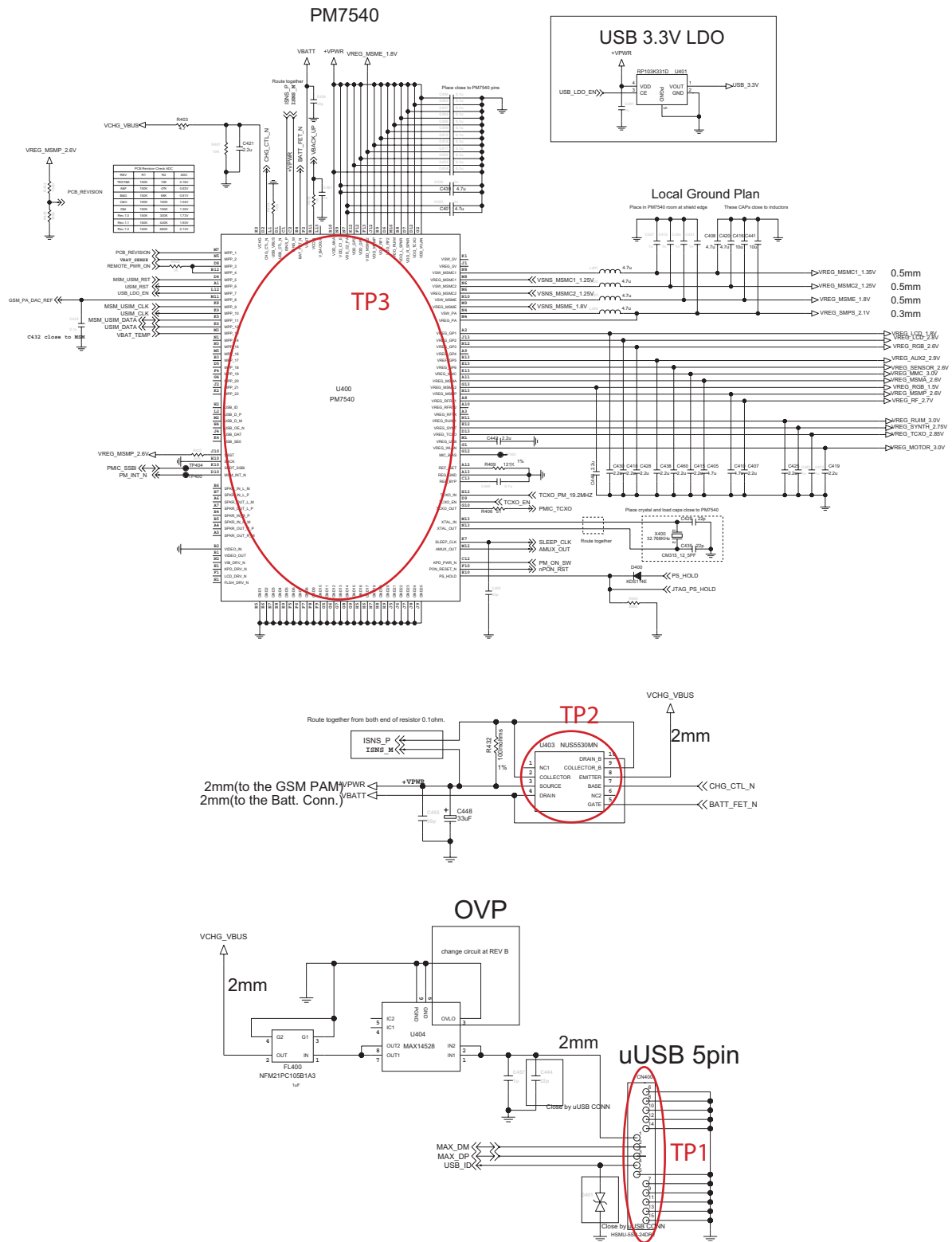
Troubleshooting Procedure

- Check the charger (TA or USB Cable) connector
- Check the OVP Circuit
- Check the charging current Path
- Check the battery

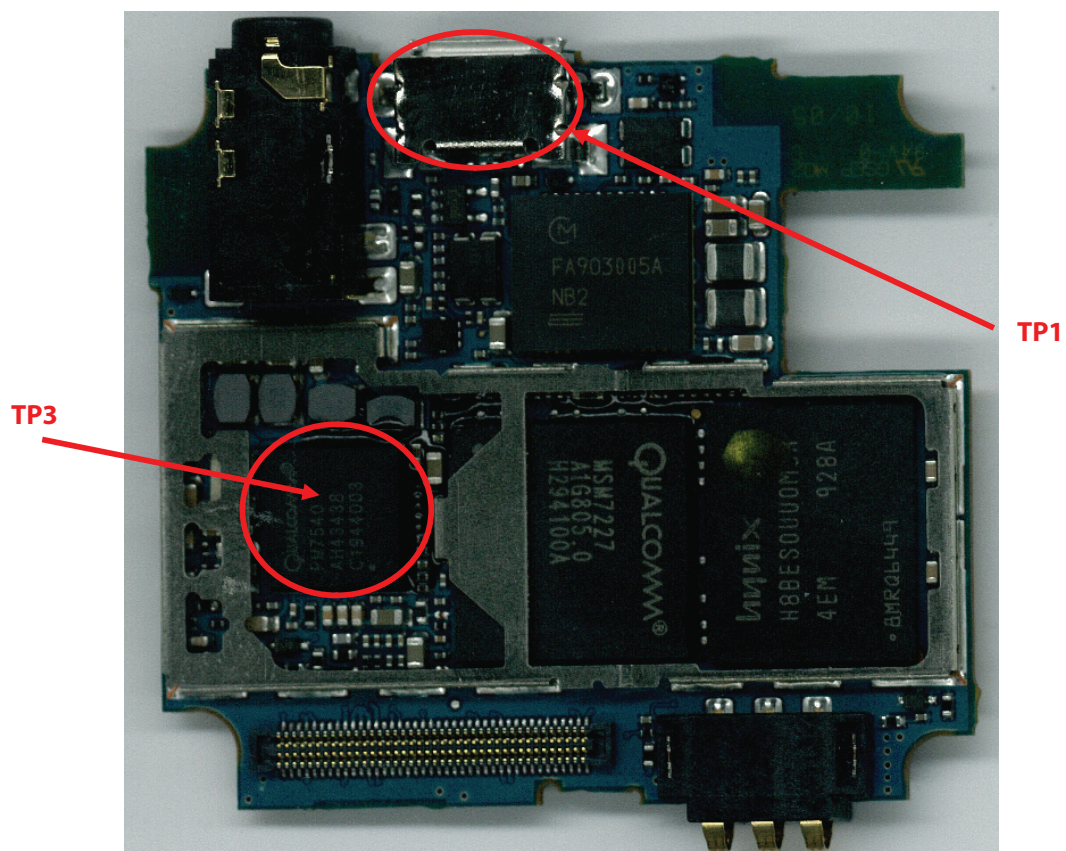
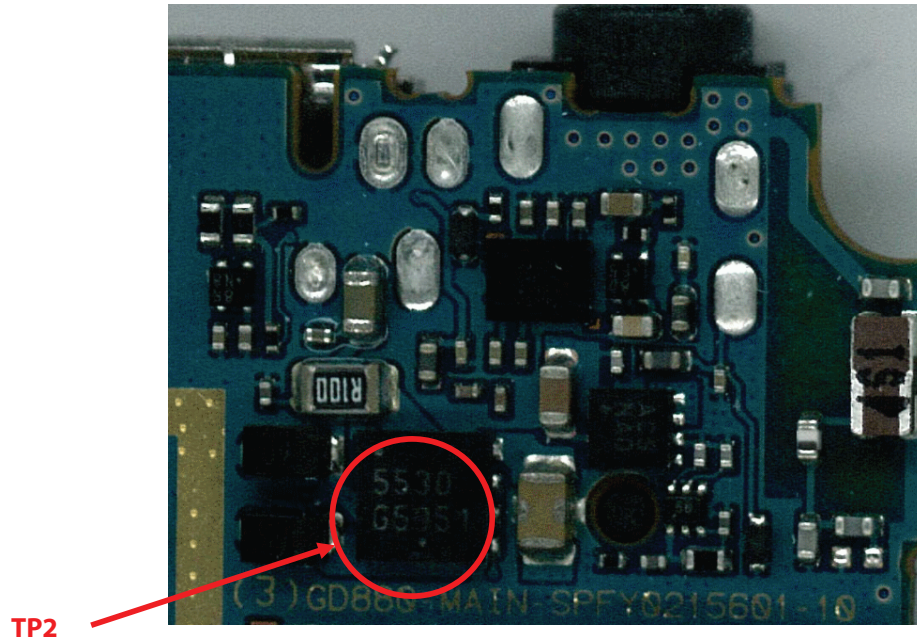


Charger Troubleshooting Flow

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Only for training and service purposes



4. TROUBLE SHOOTING



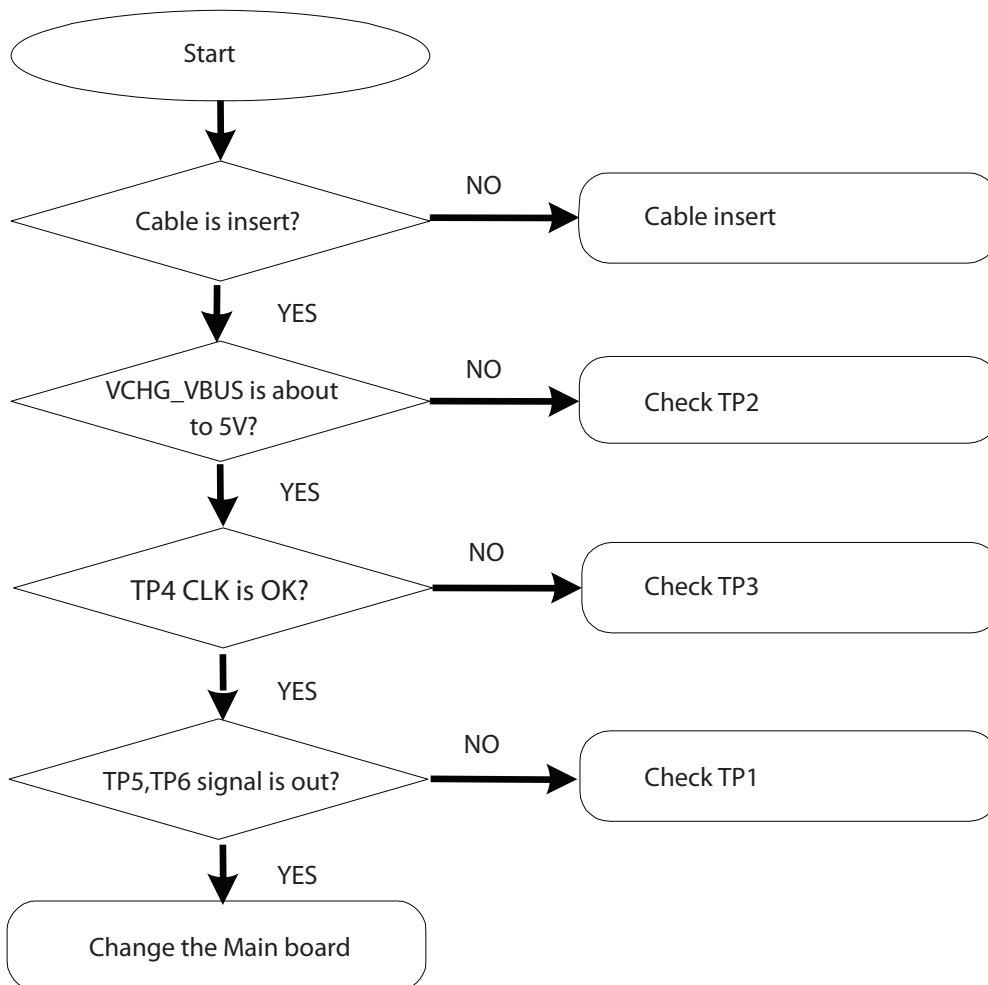
4. TROUBLE SHOOTING

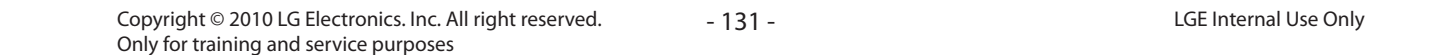
4.12 USB trouble

USB Initial sequence of GD880 is :

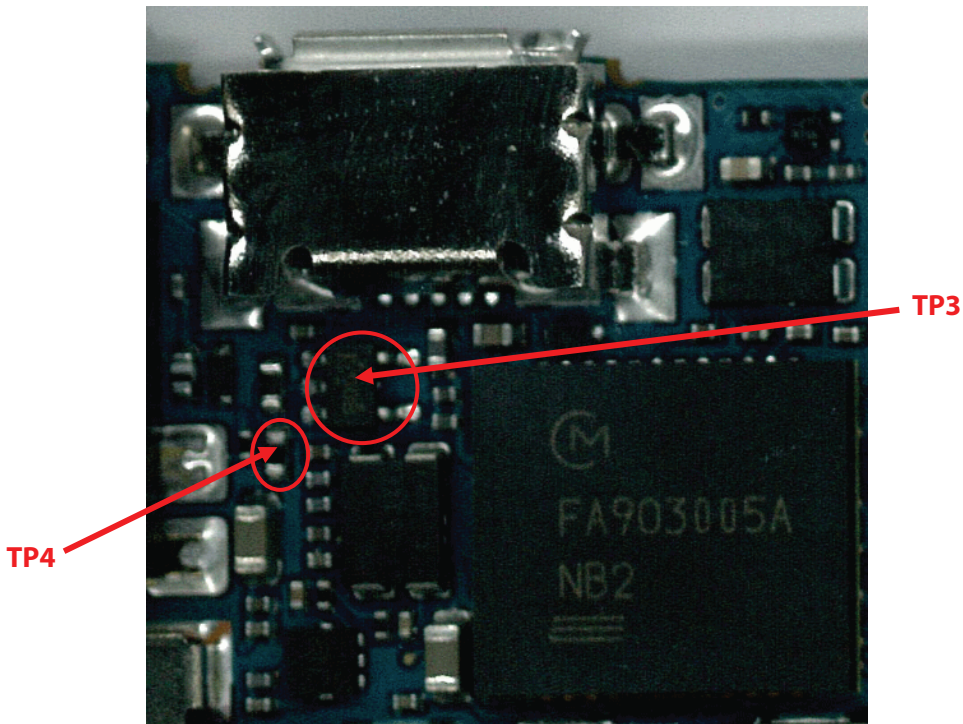
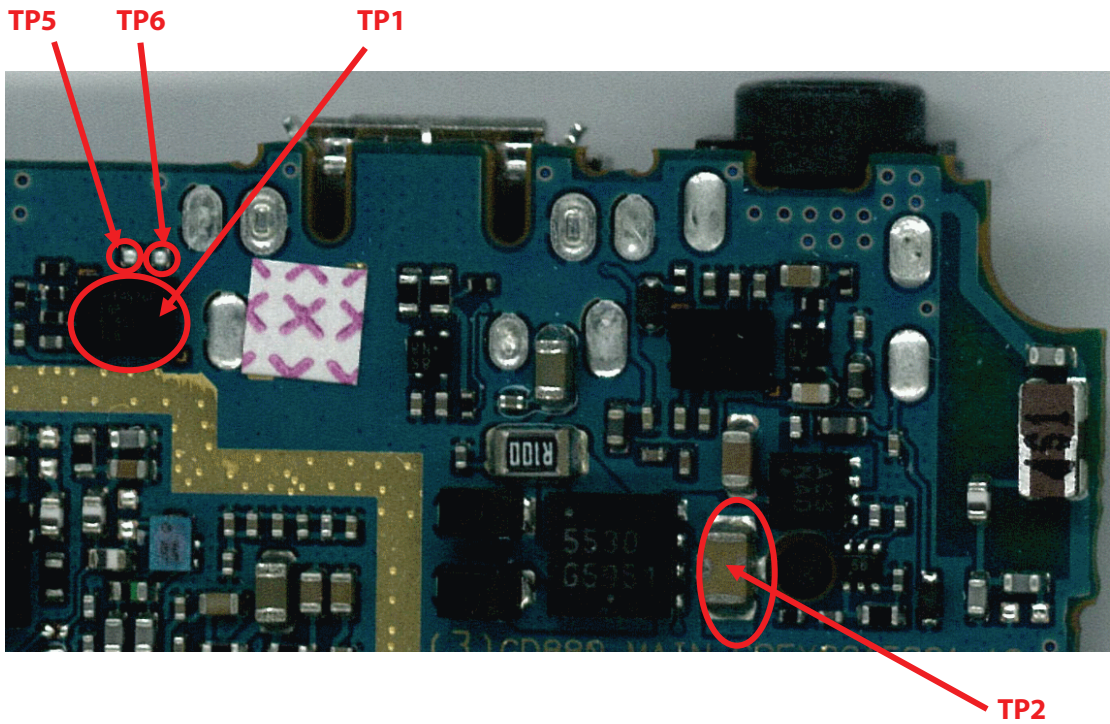
USB connected to GD880 → VCHG_VBUS(FL400) go to 5V

→ VERG_MSME_1.8V is about 1.8V → USB_CLK is OK(R210)->USB work





4. TROUBLE SHOOTING

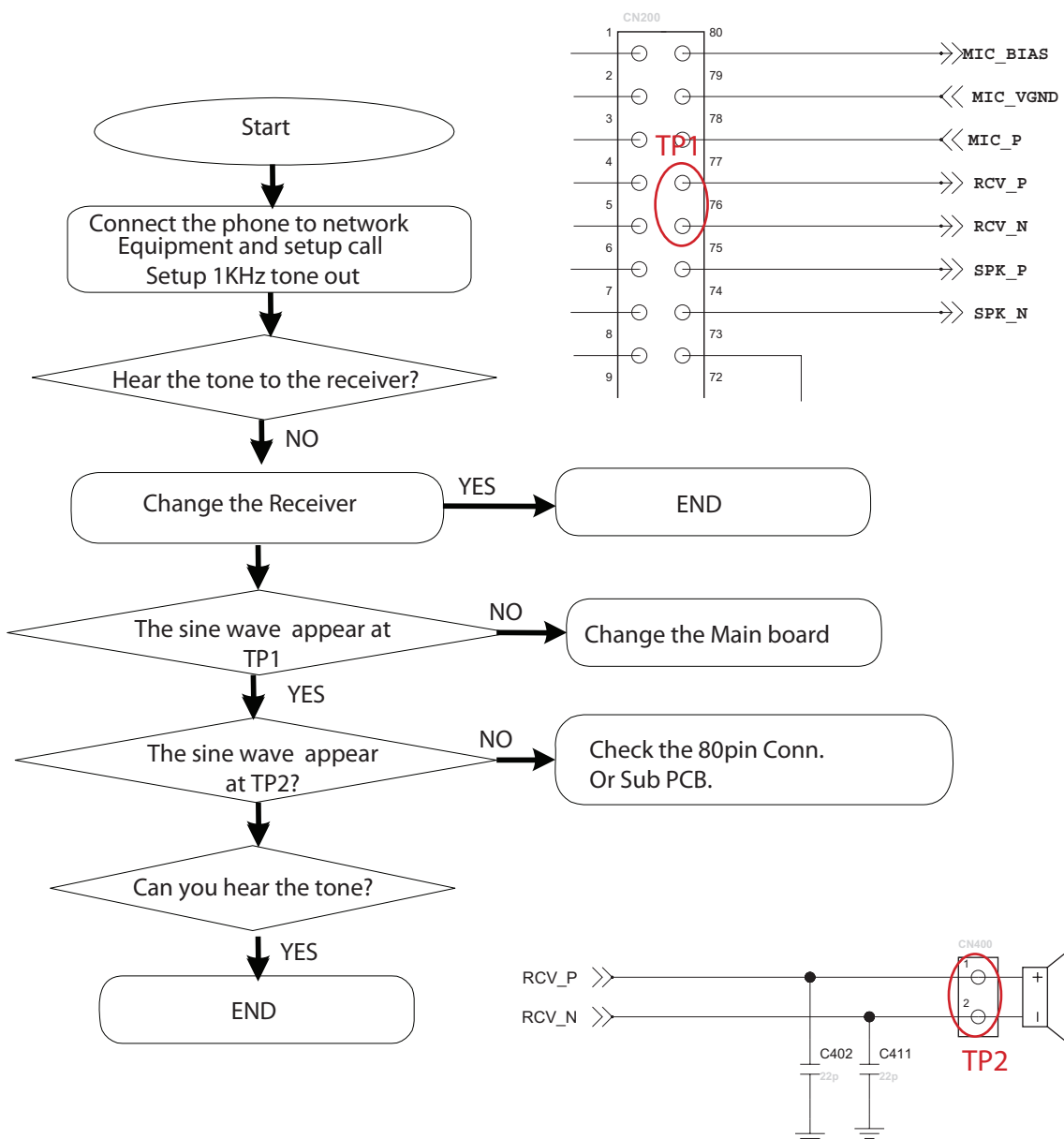


4.13 Audio trouble

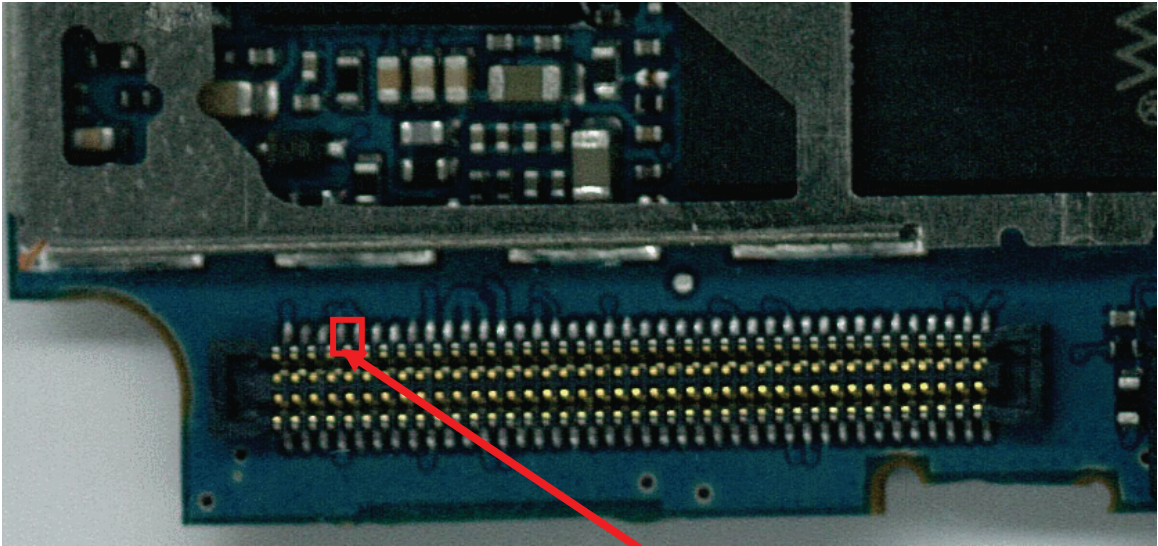
4.13.1 Receiver path

Voice Receiver path as below:

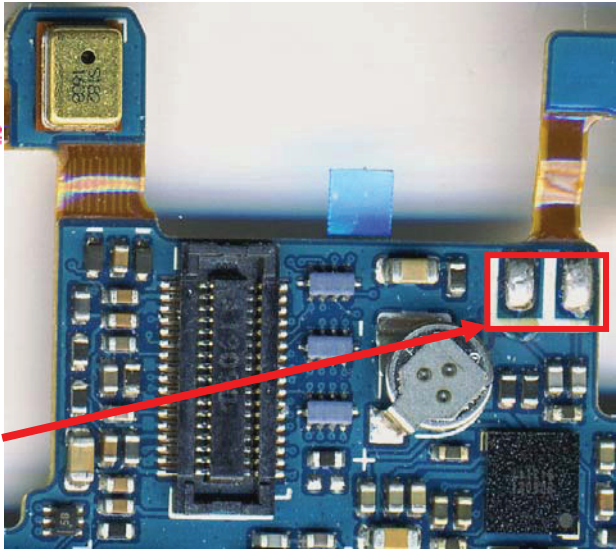
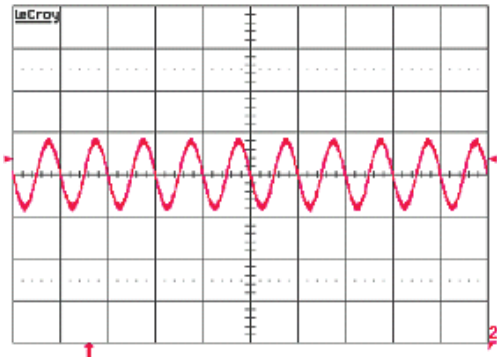
MSM7227 RCV_N / RCV_P → 80PIN CONN → RCV pad



4. TROUBLE SHOOTING



TP1

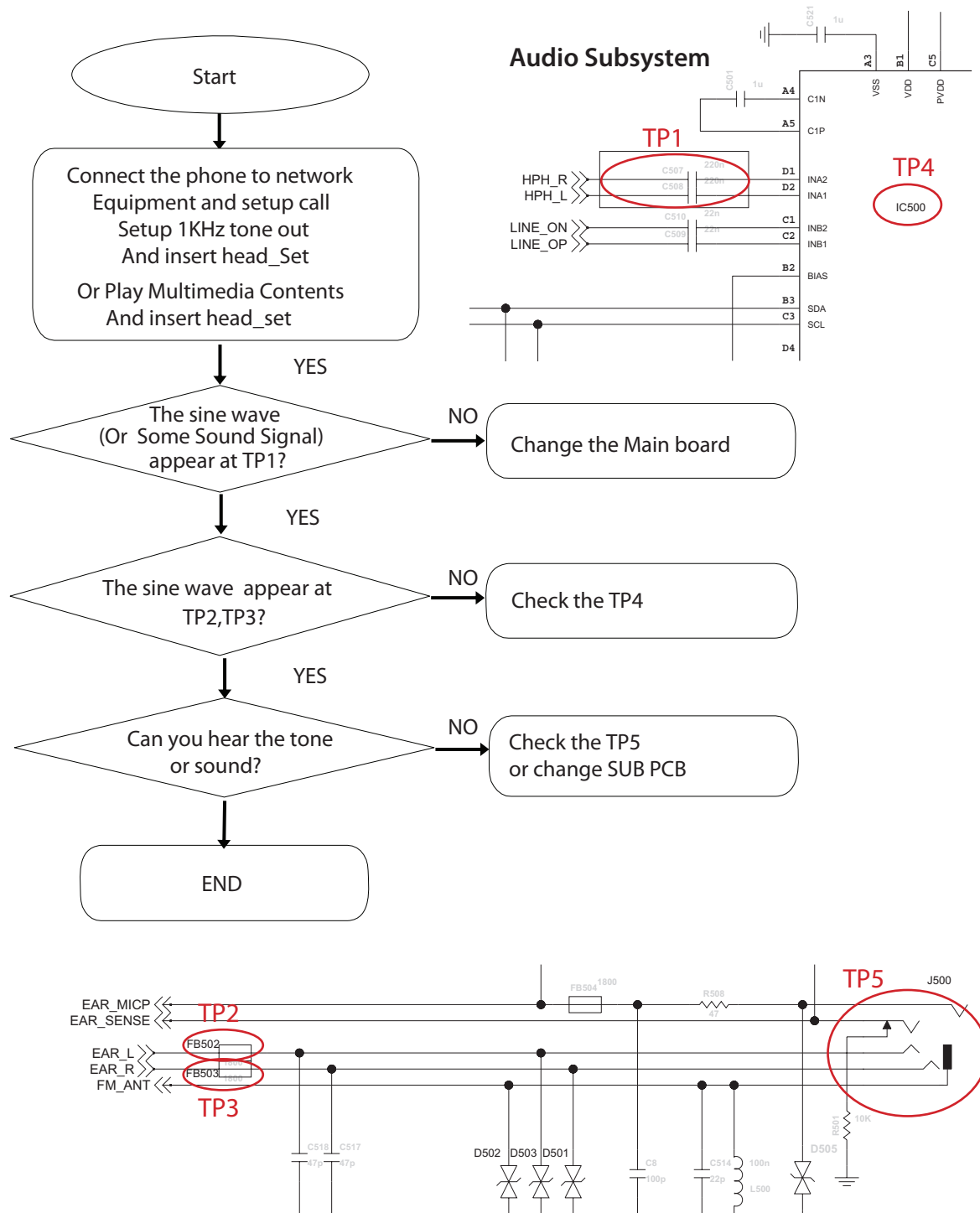


TP2

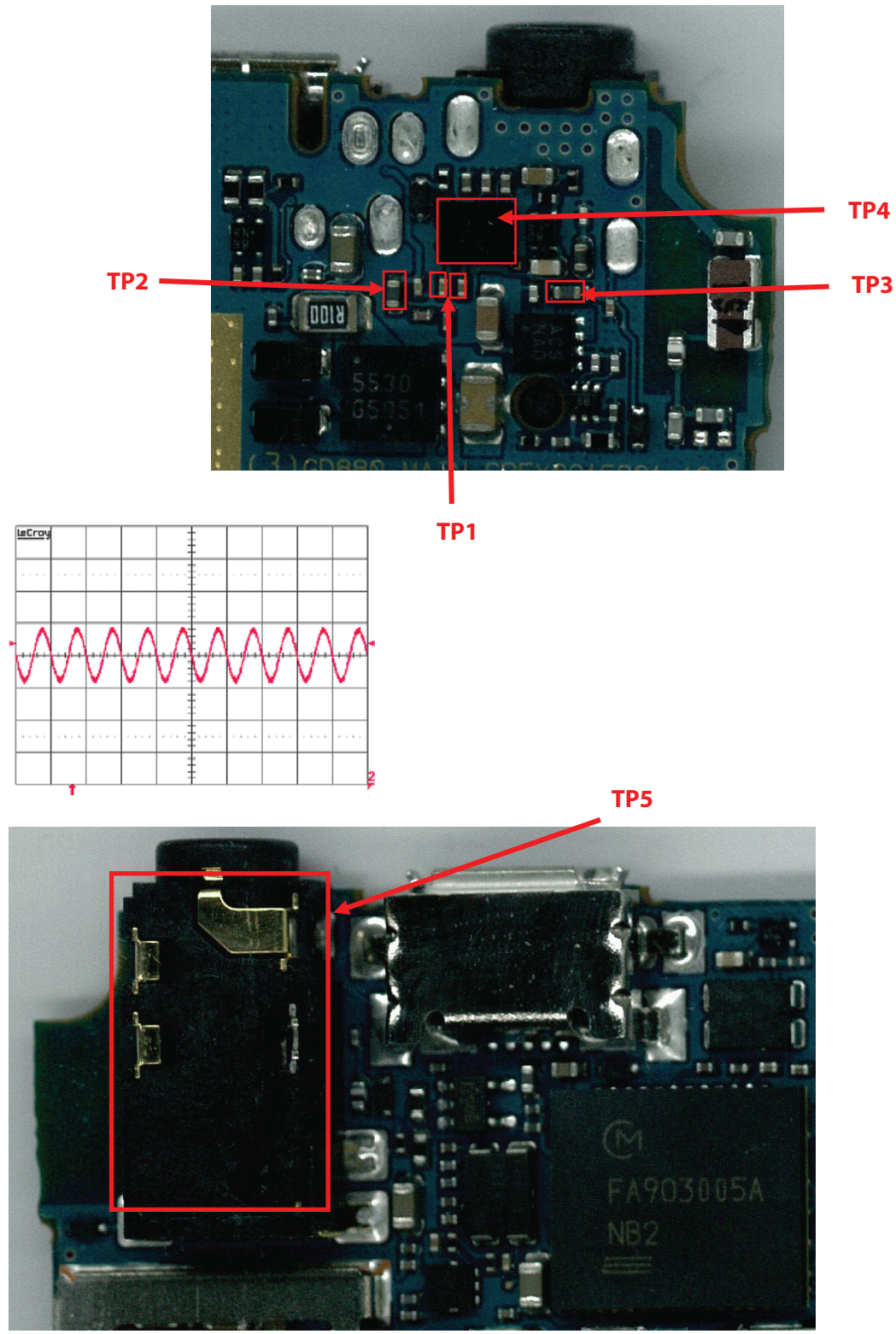
4.13.2 Headset path (Voice & Multimedia play)

Voice path for Head_Set as below:

MSM7227 HPH_R,HPH_L→C507,C508 →IC500(Audio Subsystem) →FB502,FB503 →3.5pi Ear-jack



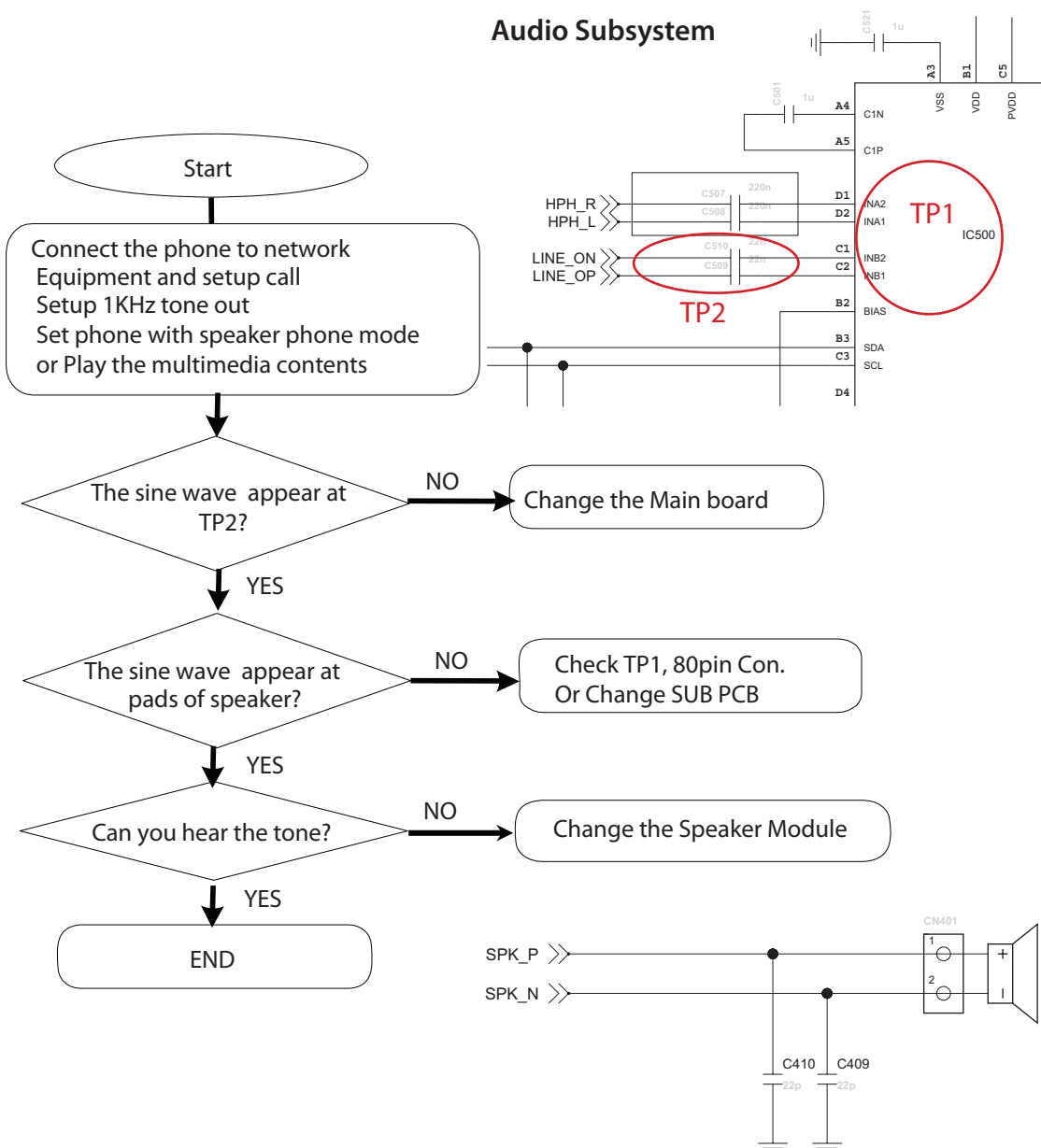
4. TROUBLE SHOOTING



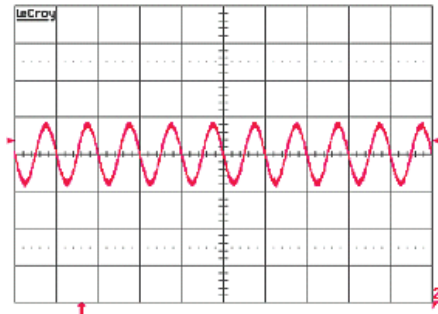
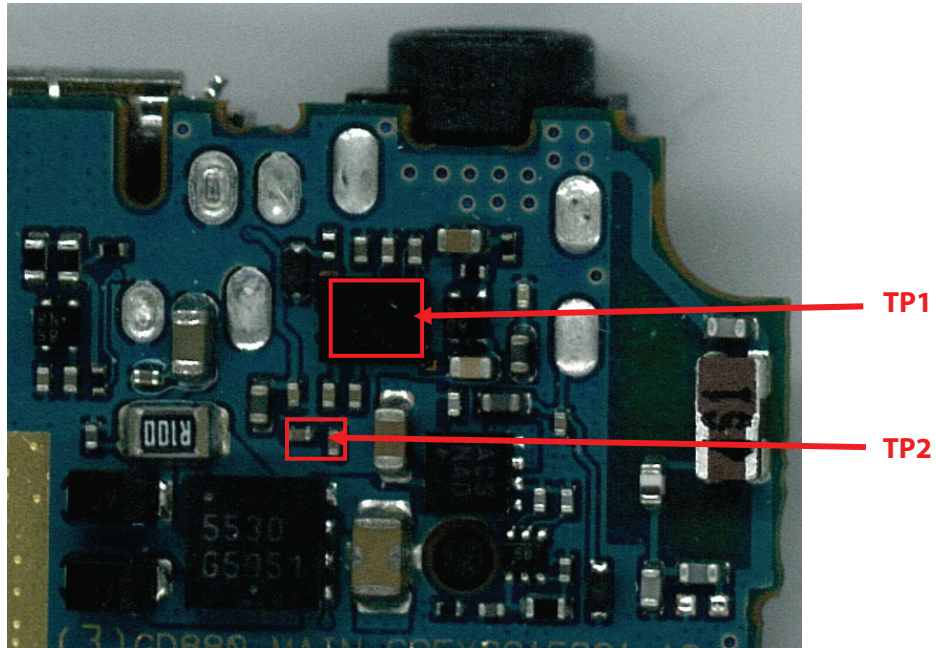
4.13.3 Loud speaker path (voice speaker phone, Multimedia play)

Loud speaker path as below:

MSM7227 LINE_OP,ON → C509,C510 → IC500(Audio Subsystem) → 80pin Conn → Speaker PAD

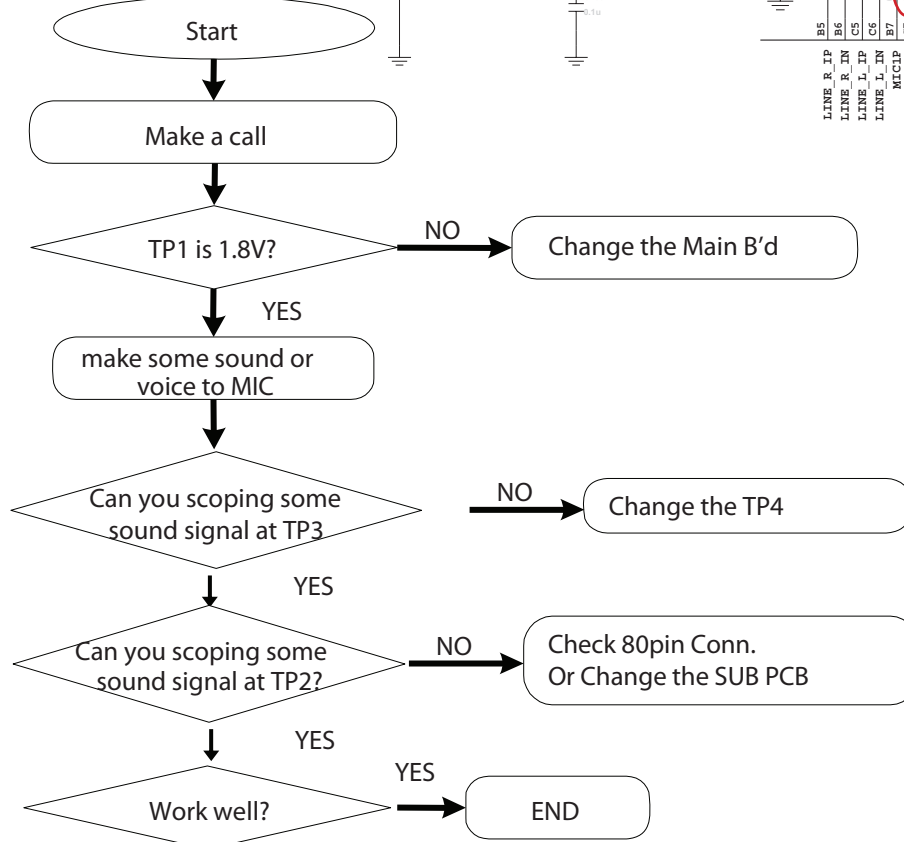
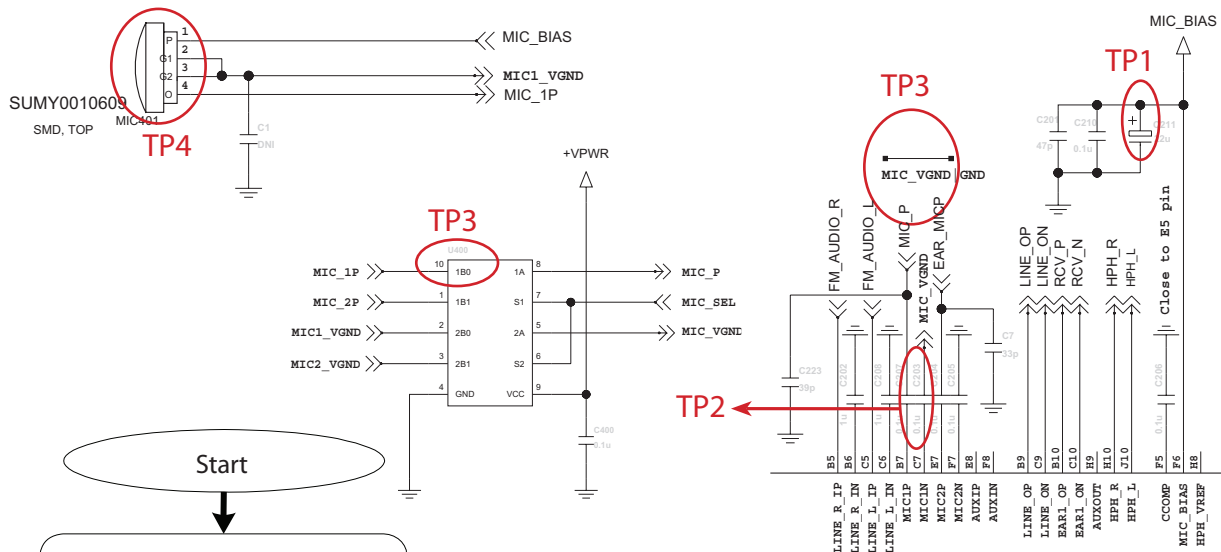


4. TROUBLE SHOOTING

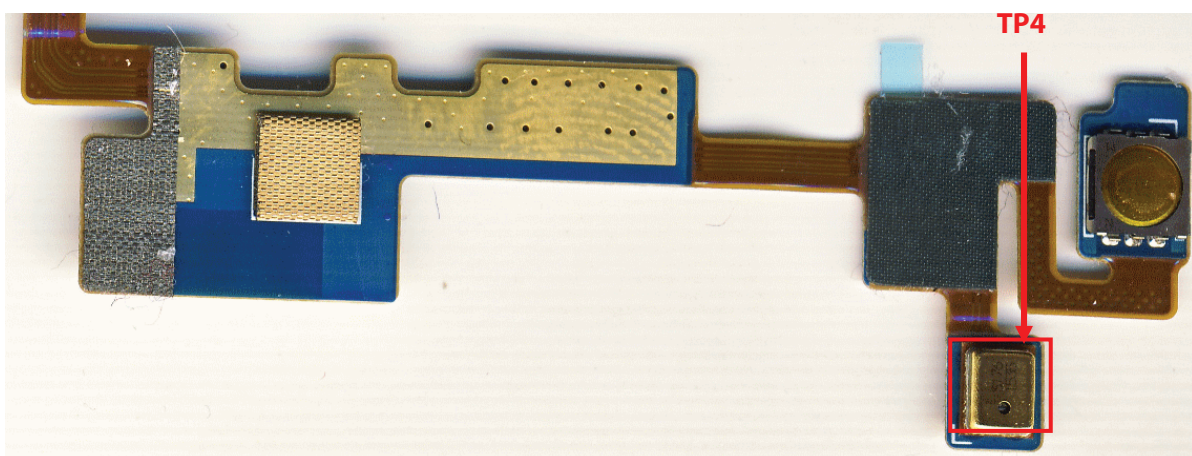
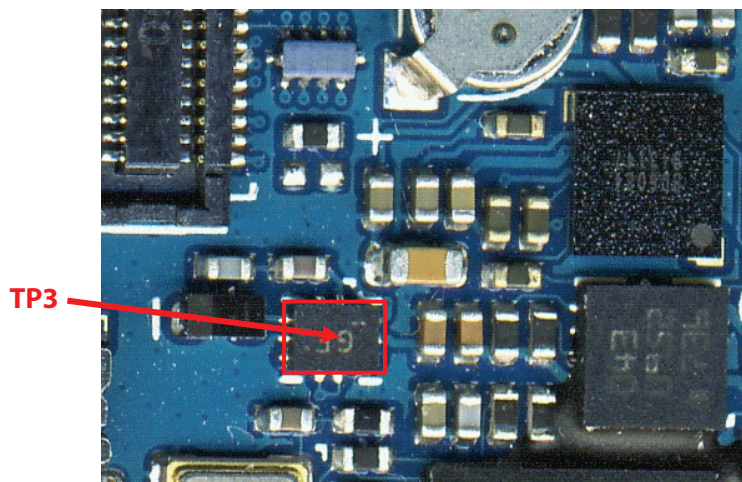
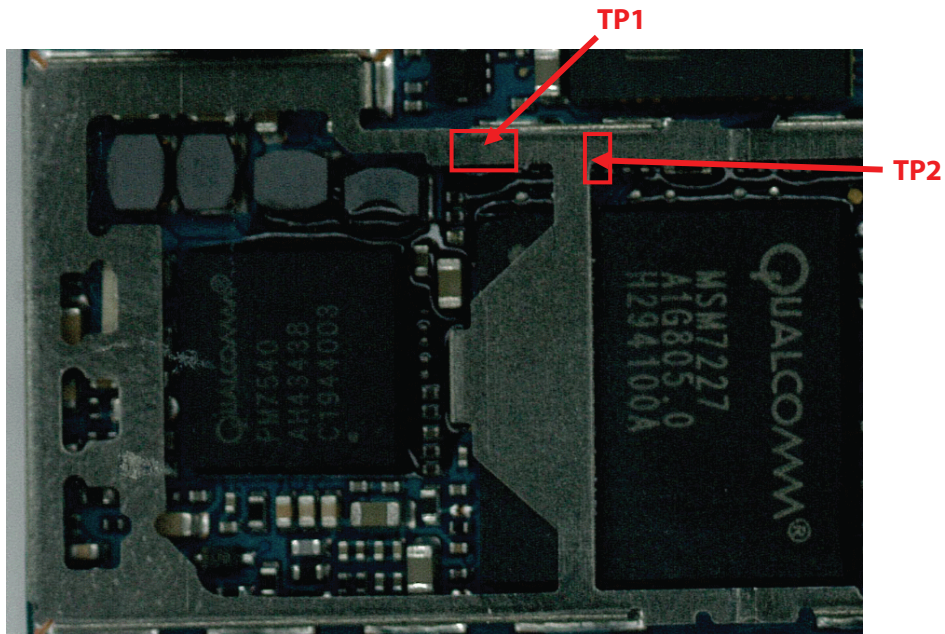


4.13.4.1 Normal Mode

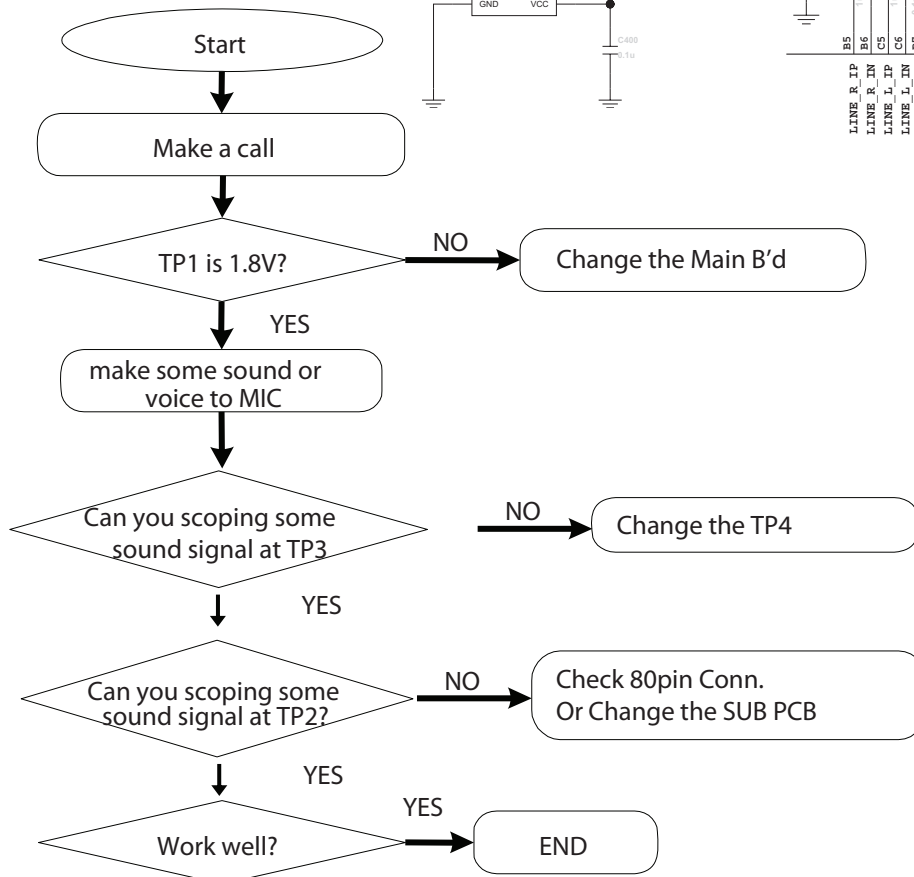
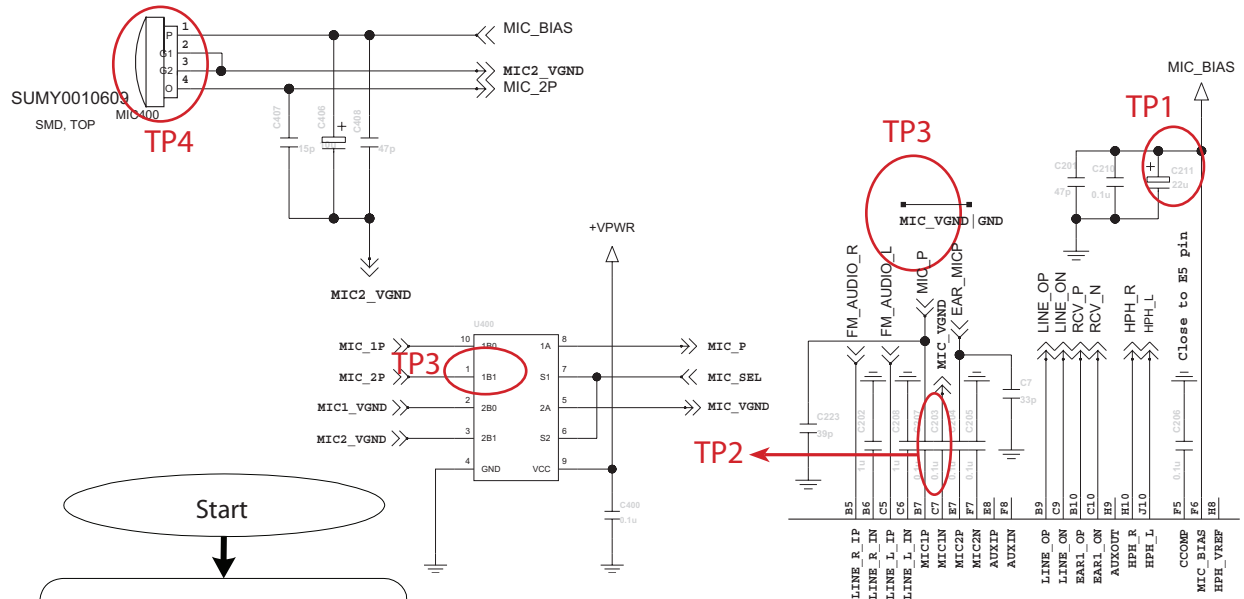
MIC1 → U400(Analog S/W) → 80pin Conn -> C207 → MSM7227



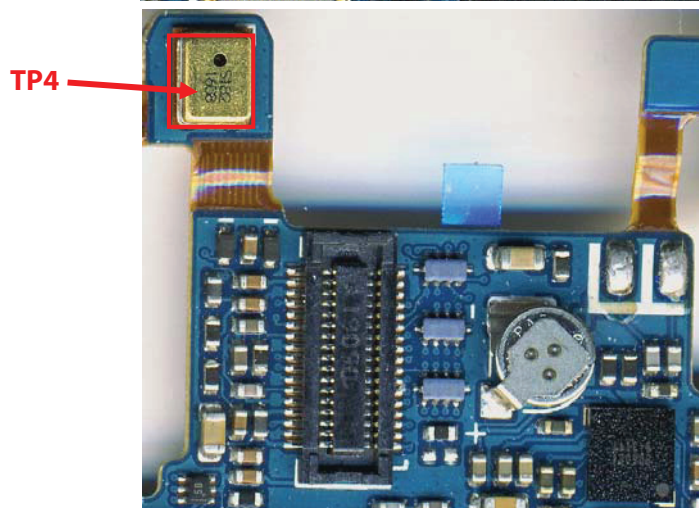
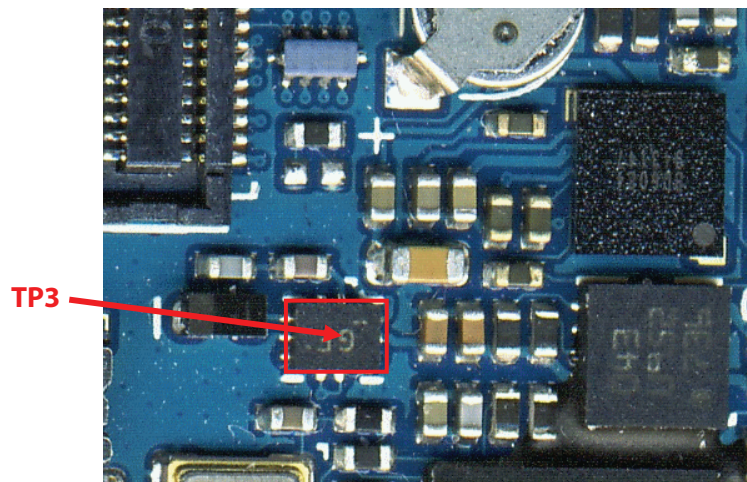
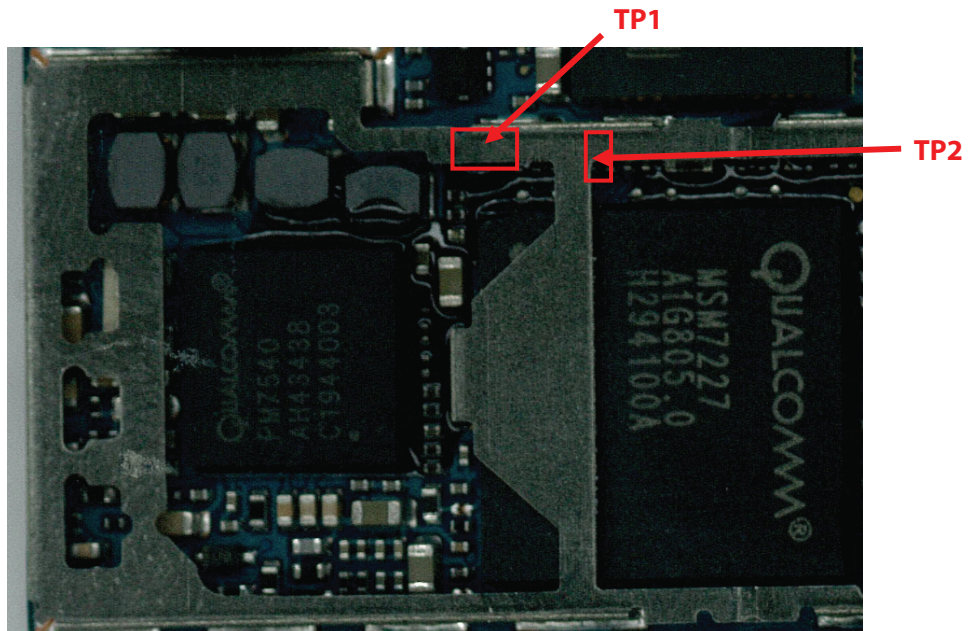
4. TROUBLE SHOOTING



Main Microphone path as below:
MIC2 → U400(Analog S/W) → 80pin Conn -> C207 → MSM7227



4. TROUBLE SHOOTING

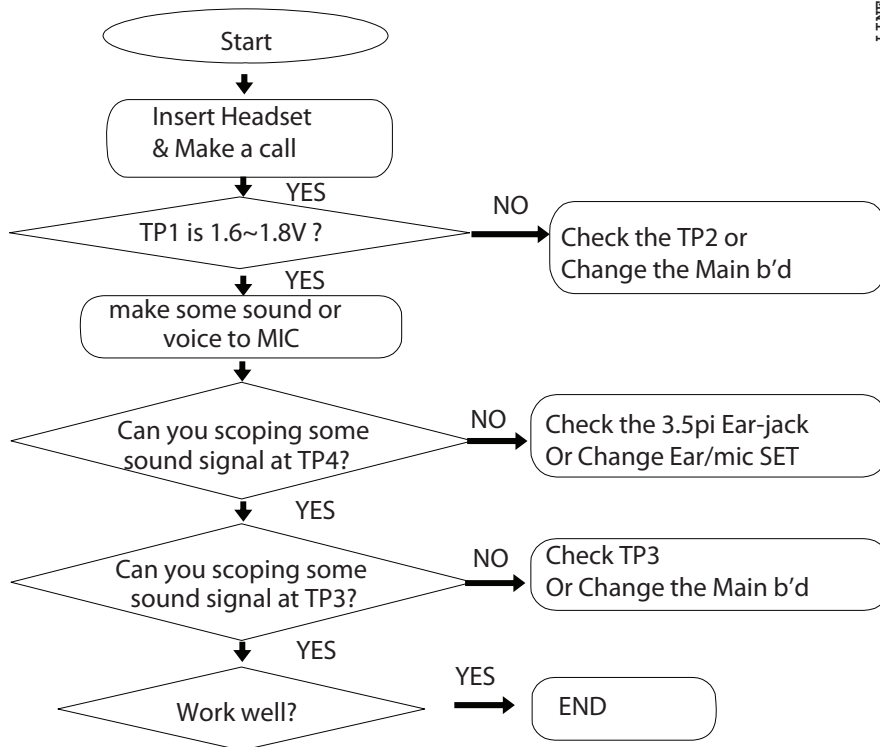
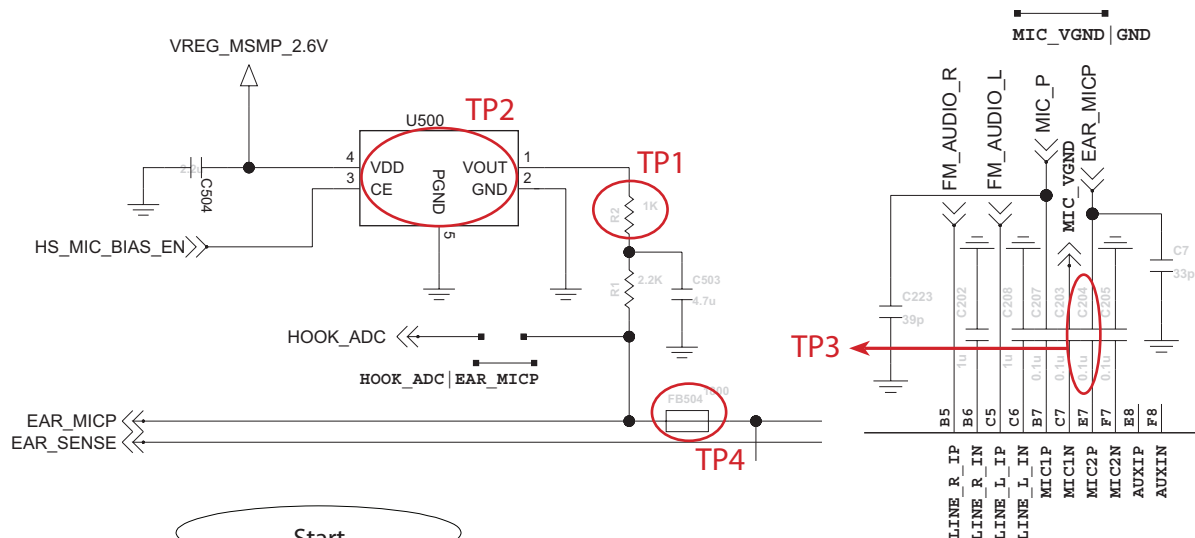


4.13.5 Microphone for headset

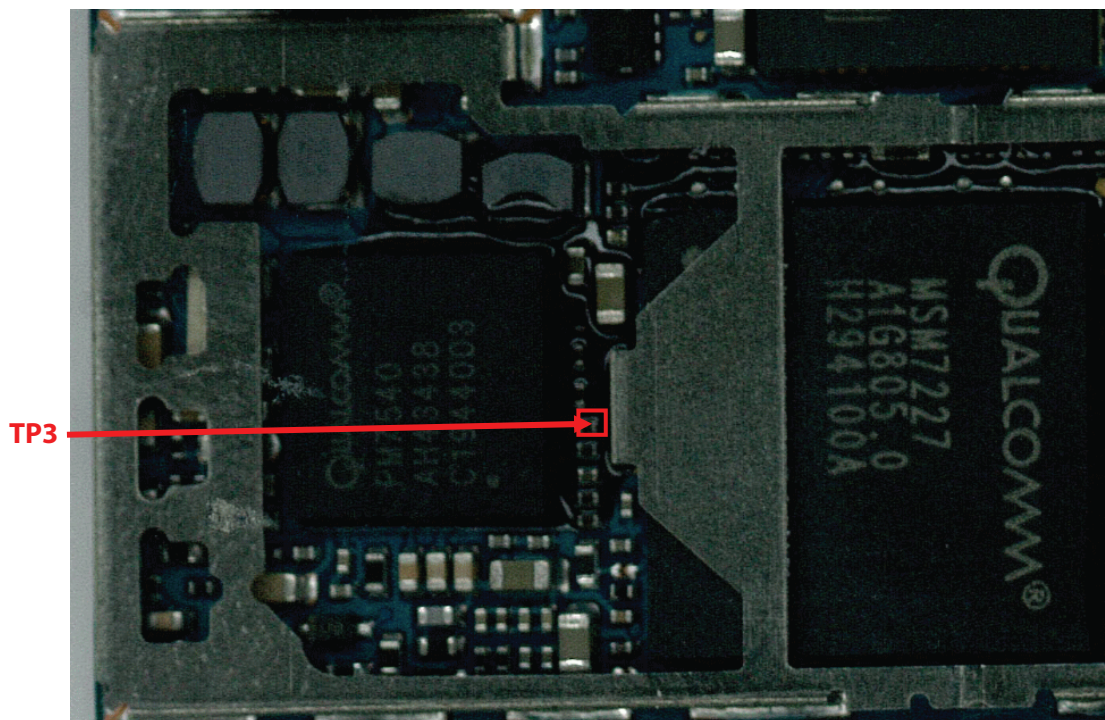
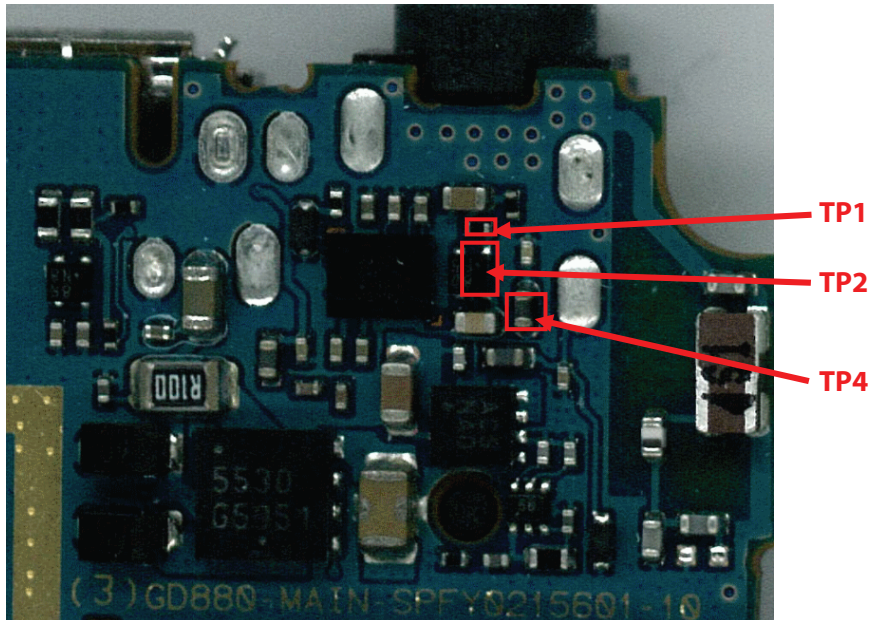
MIC for Head_Set path as below:

Insert Headset → Interrupt which are the signal of Headset detecting arise in EAR_SENSE

→ MIC BIAS LDO U500's R506(RES) :1.6V~1.8V(MIC BIAS)→ MIC signal → FB504→C204→MSM7227

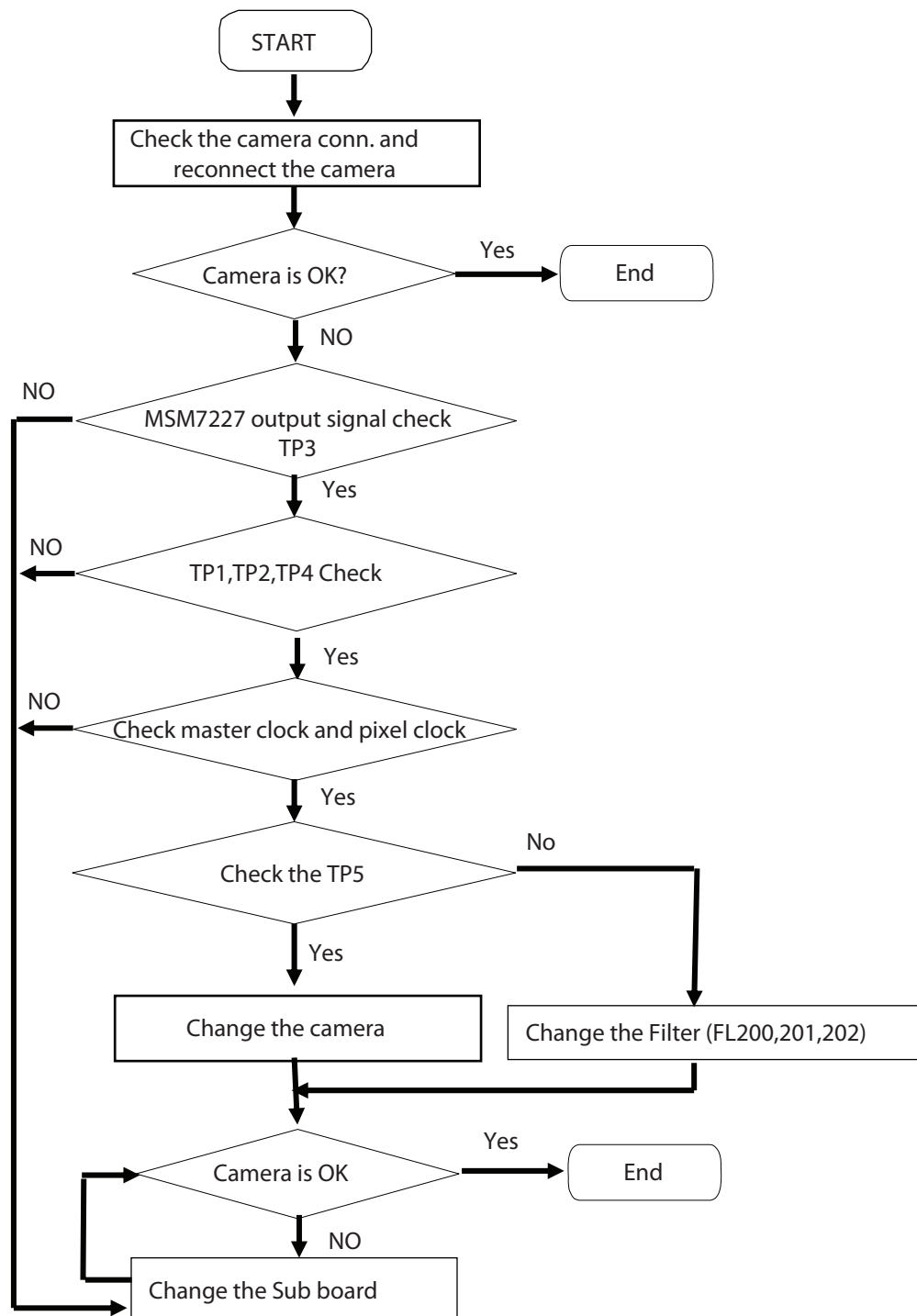


4. TROUBLE SHOOTING



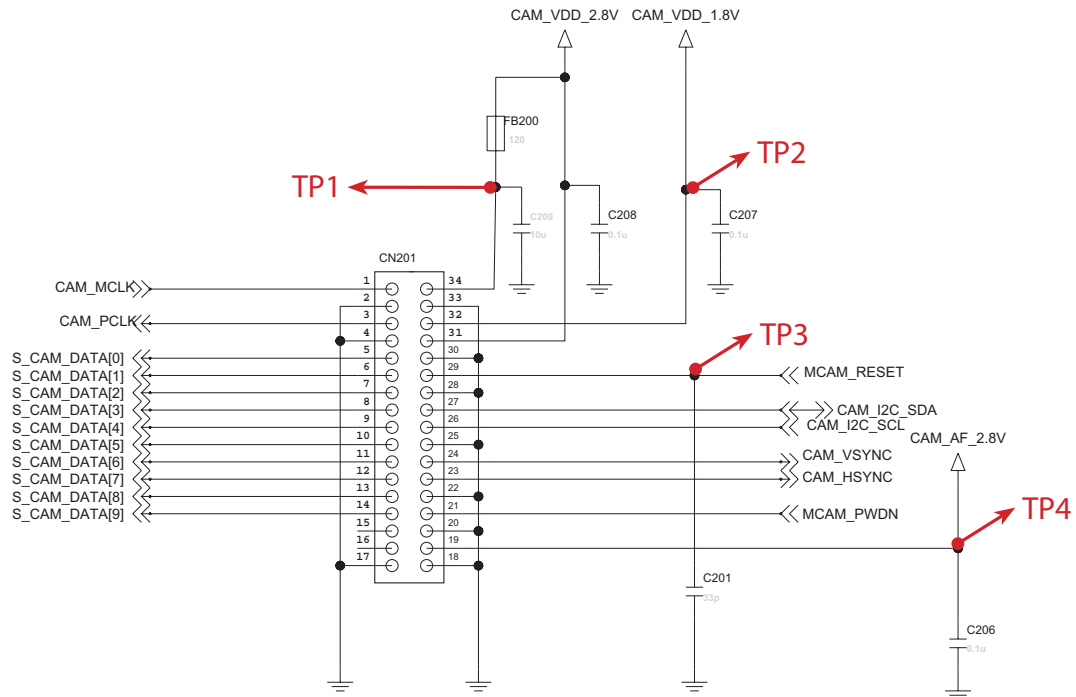
5M camera control signals are generated by MSM7227.

5M camera control signals are generated by MSM7227.

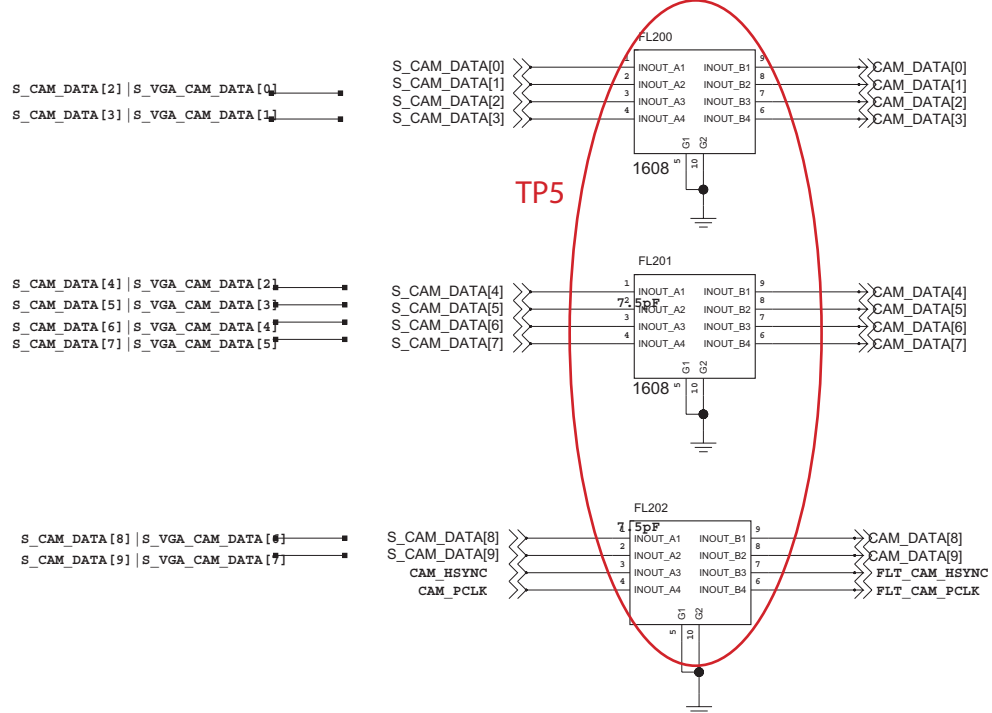


4. TROUBLE SHOOTING

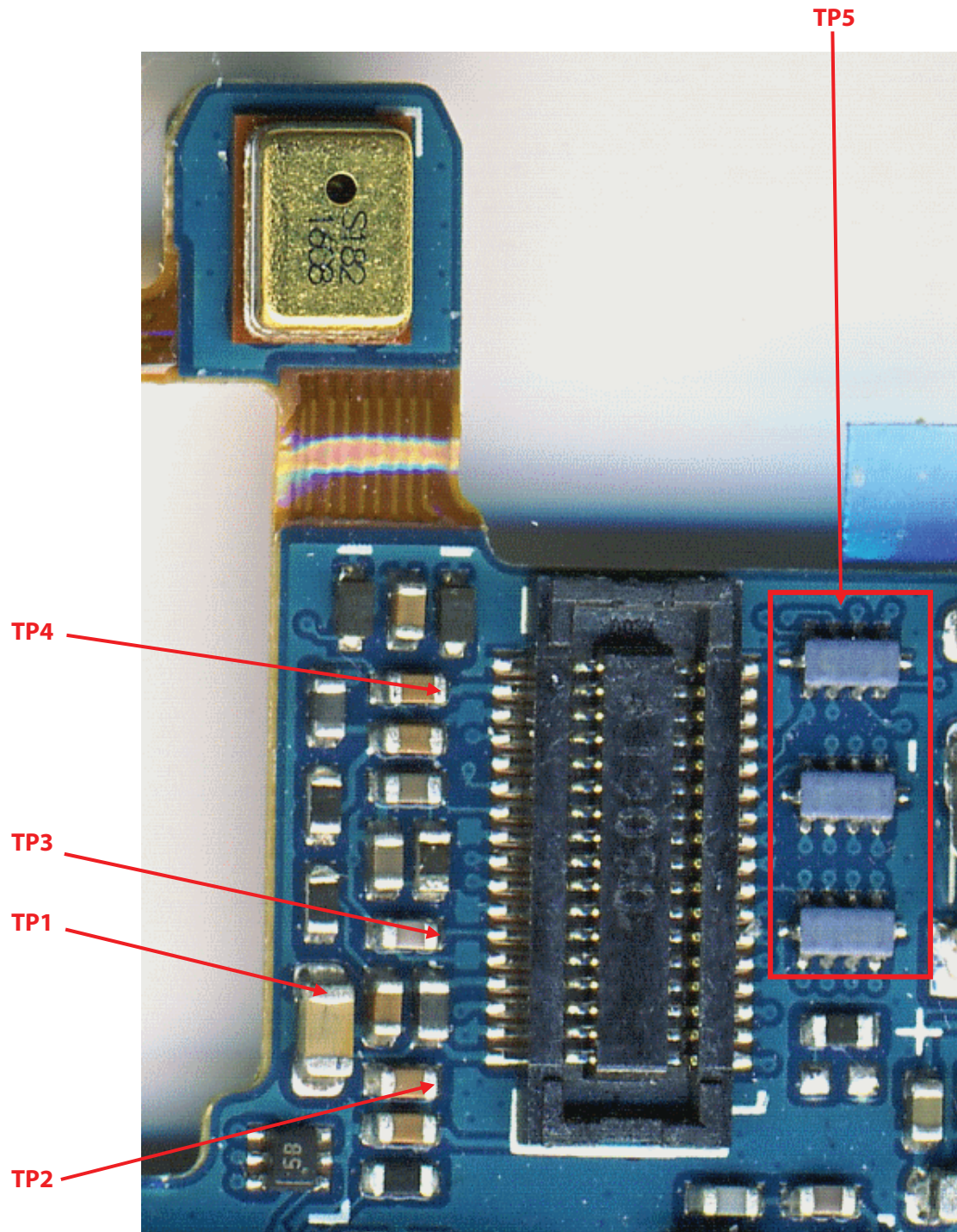
5M CAMERA CON.



EMI FILTER



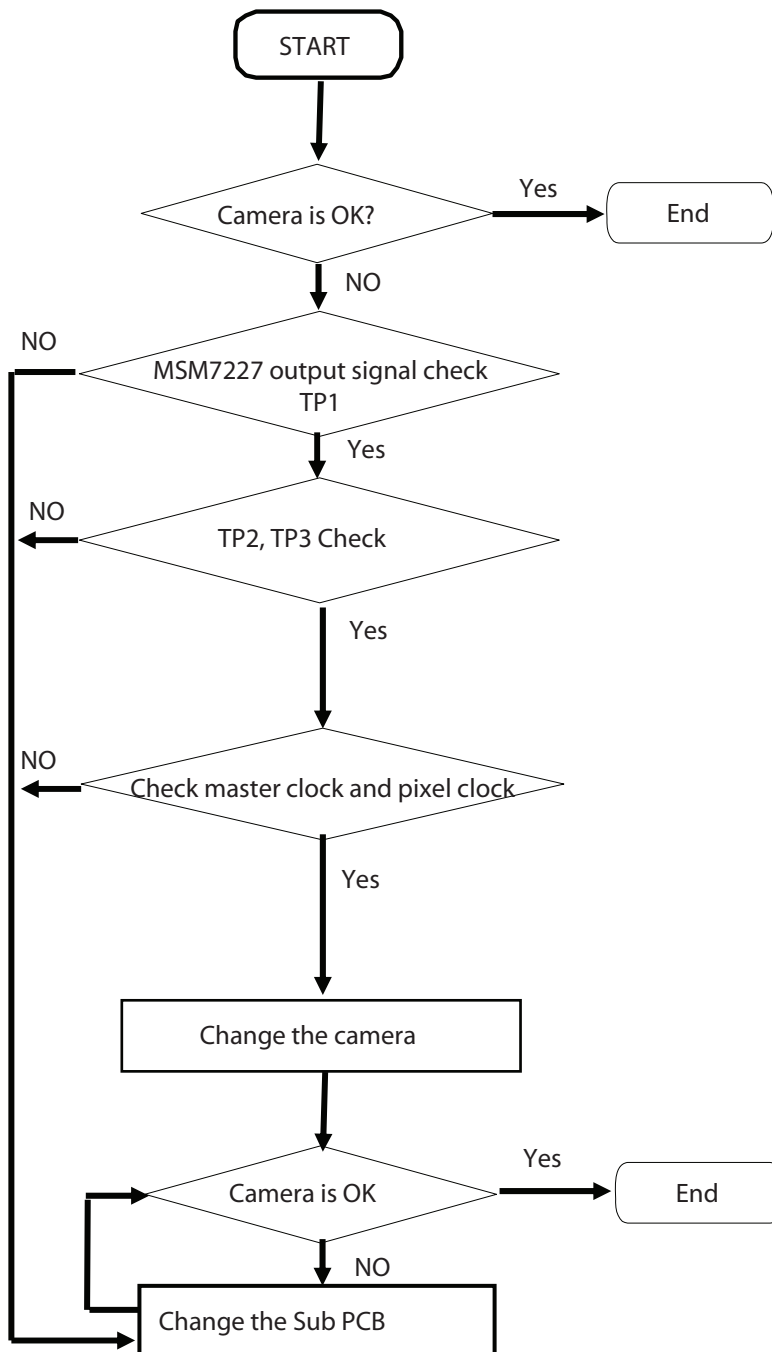
4. TROUBLE SHOOTING



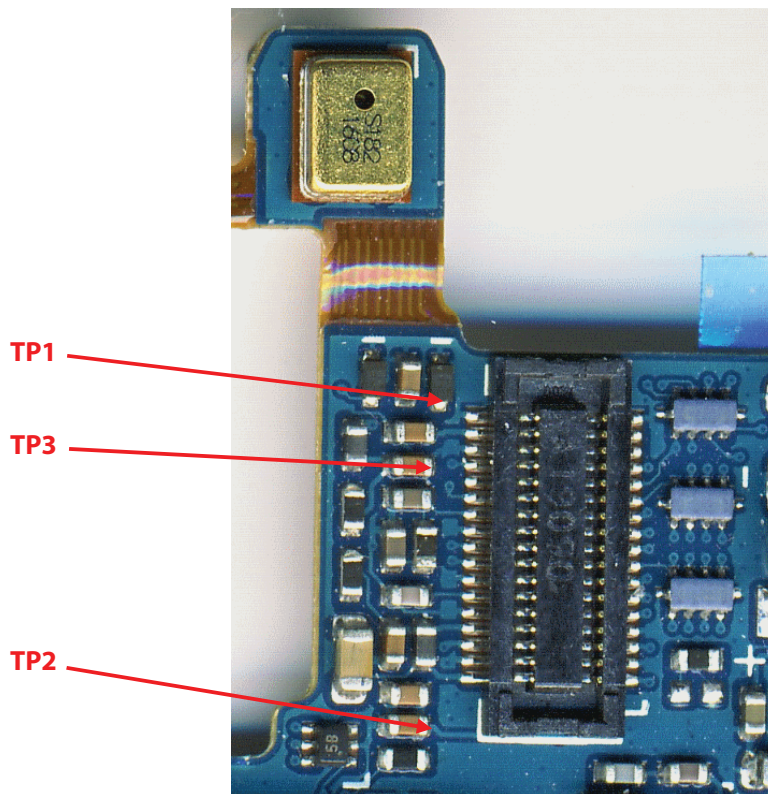
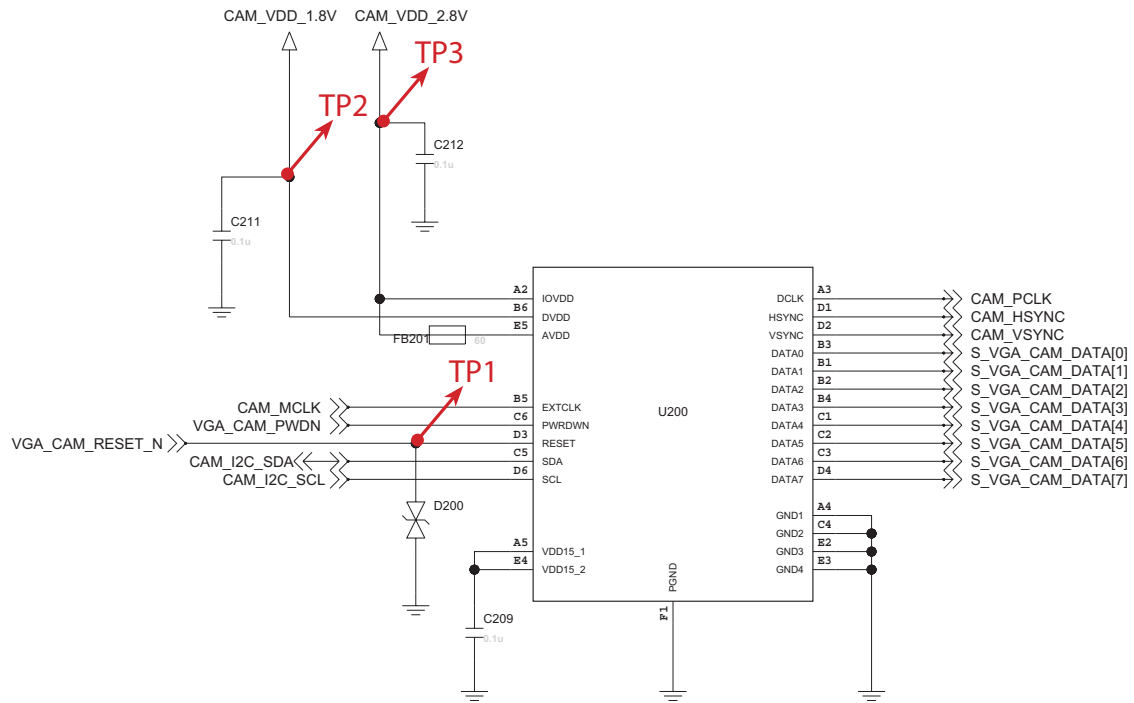
4. TROUBLE SHOOTING

4.15 VGA Camera trouble

VGA camera control signals are generated by MSM7227.



4. TROUBLE SHOOTING

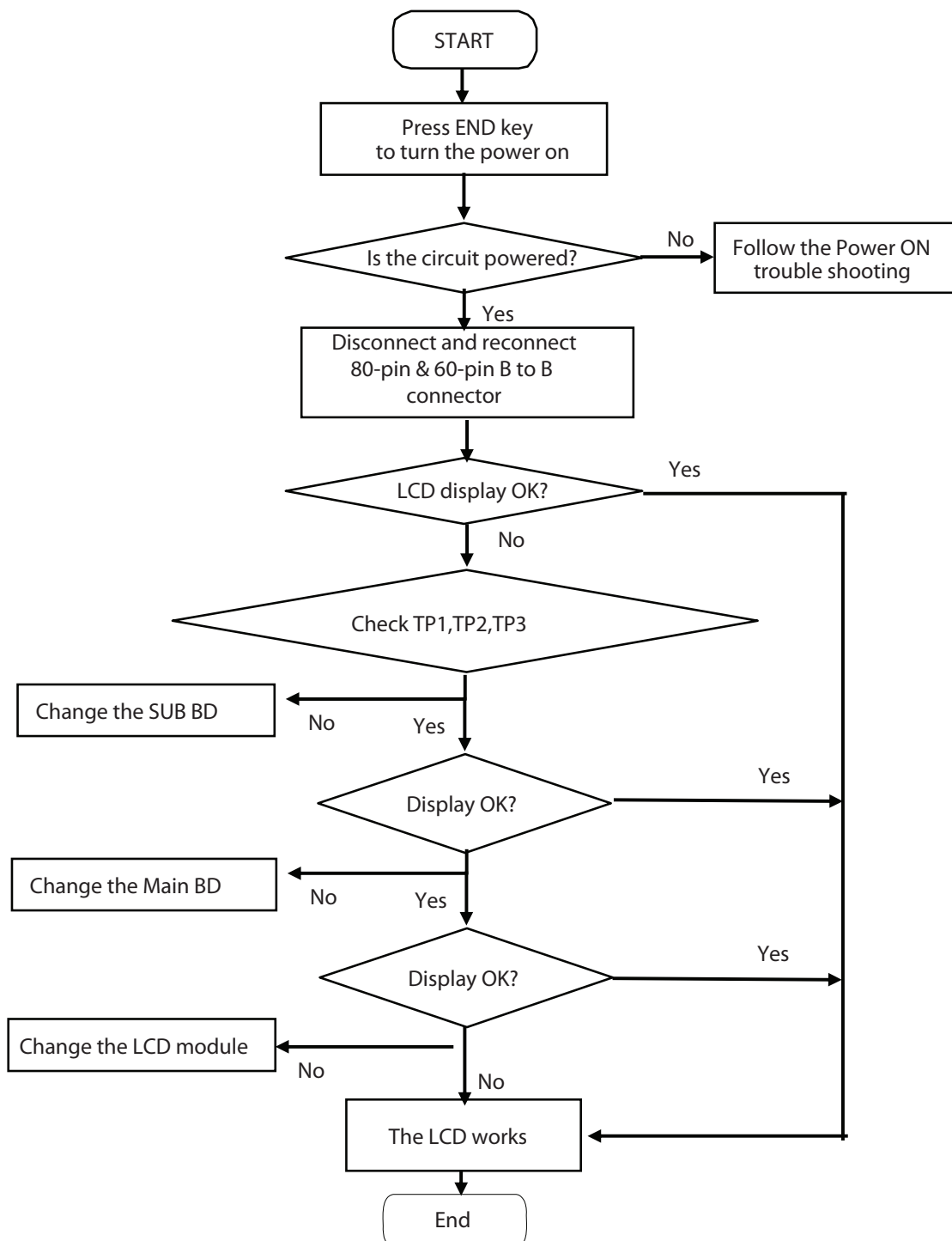


4. TROUBLE SHOOTING

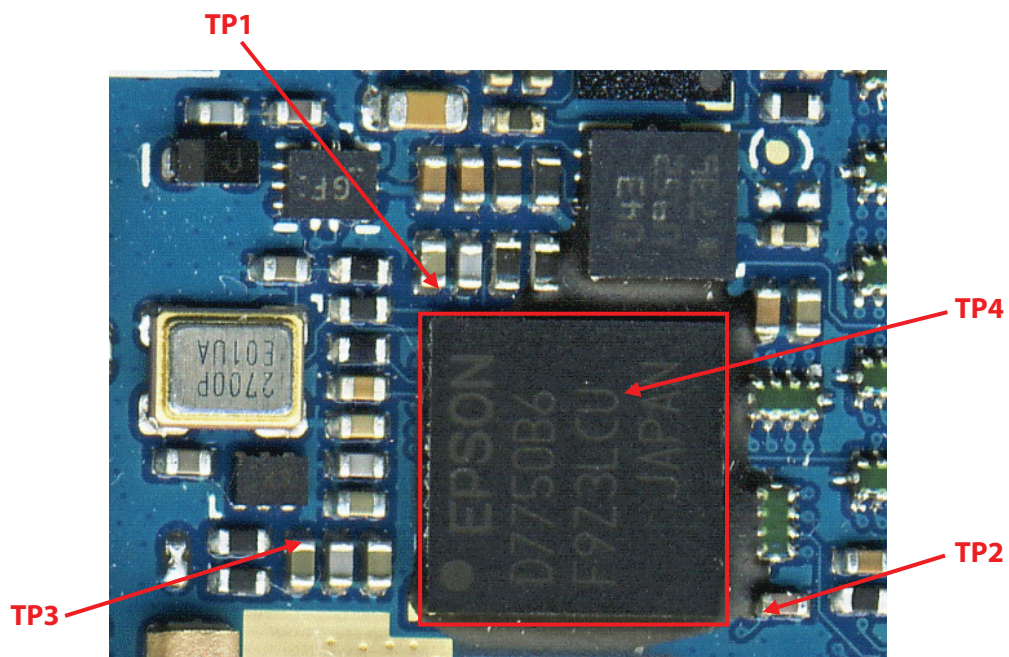
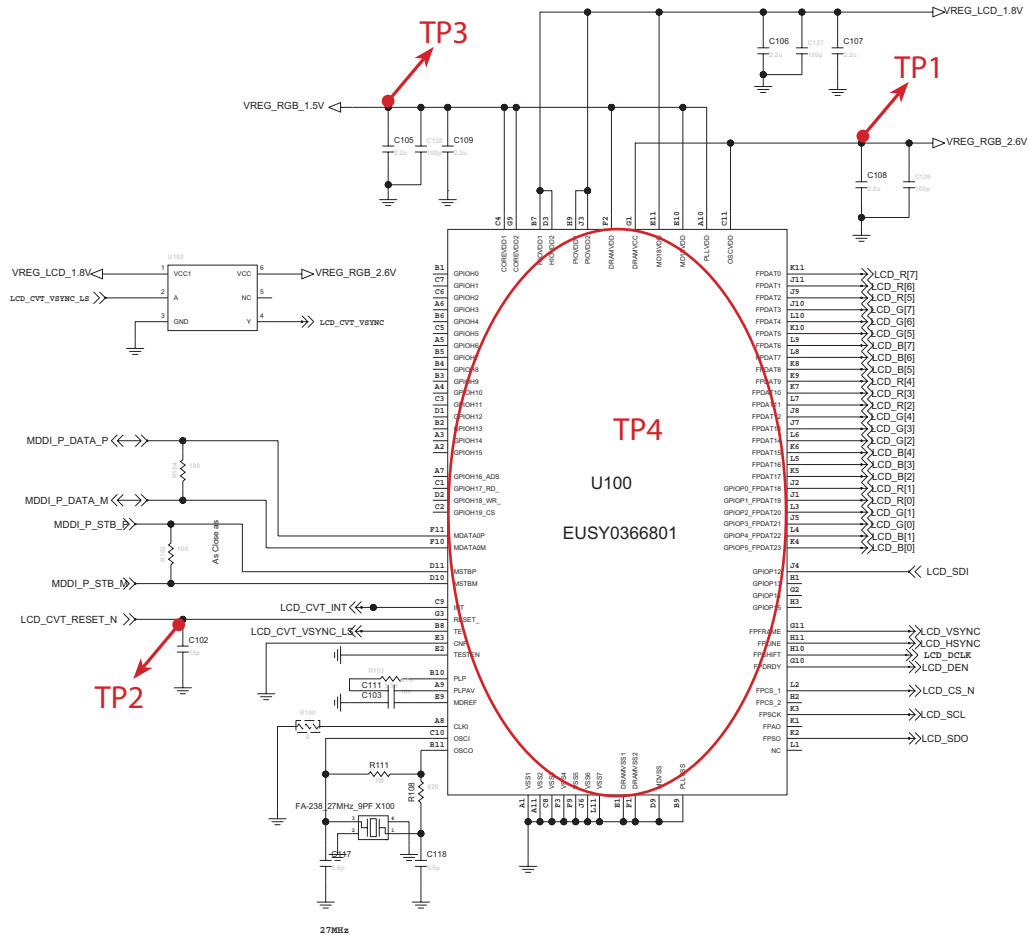
4.16 Main LCD trouble

Main LCD control signals are generated by MSM7227. Those signal's path are :

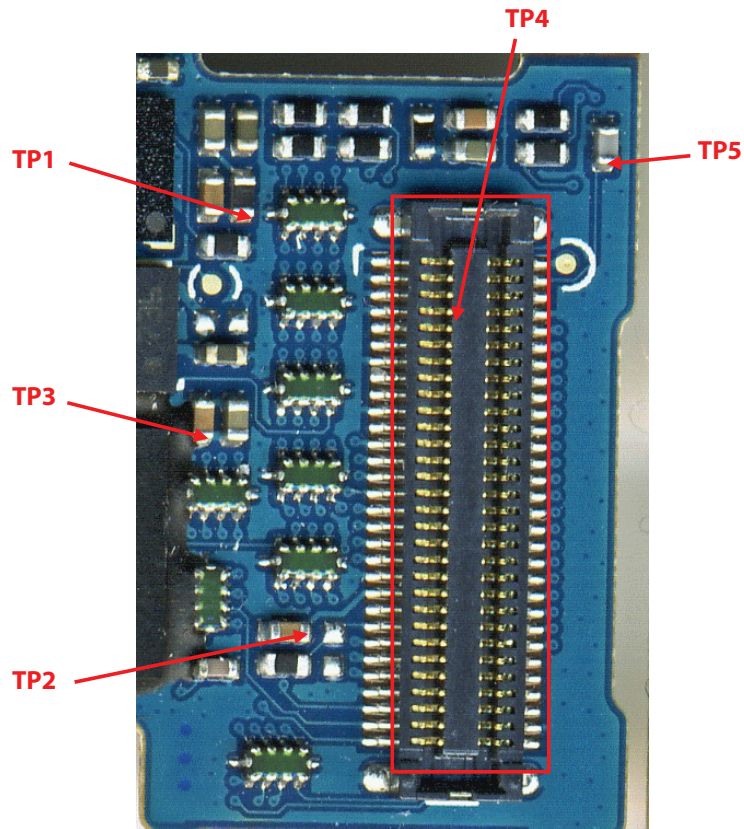
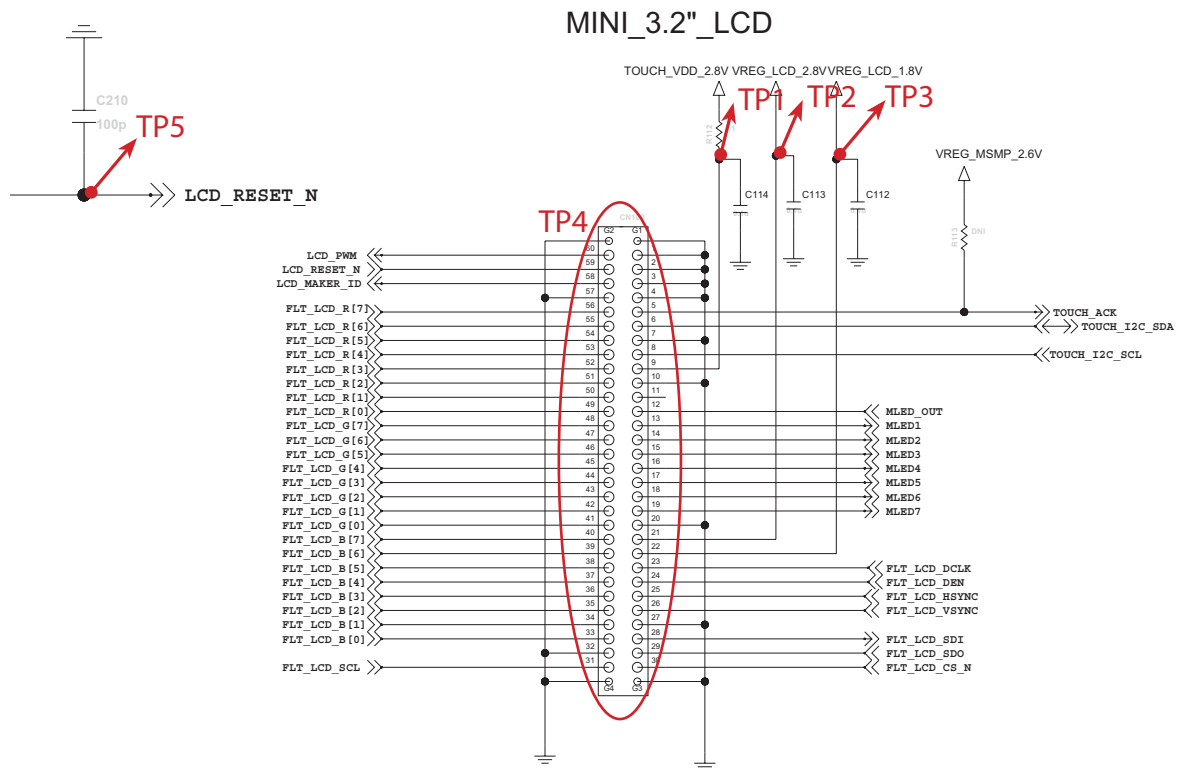
MSM7227 → 80-pin Main to SUB connector → RGB converter → 60-pin LCD connector → LCD Module



4. TROUBLE SHOOTING



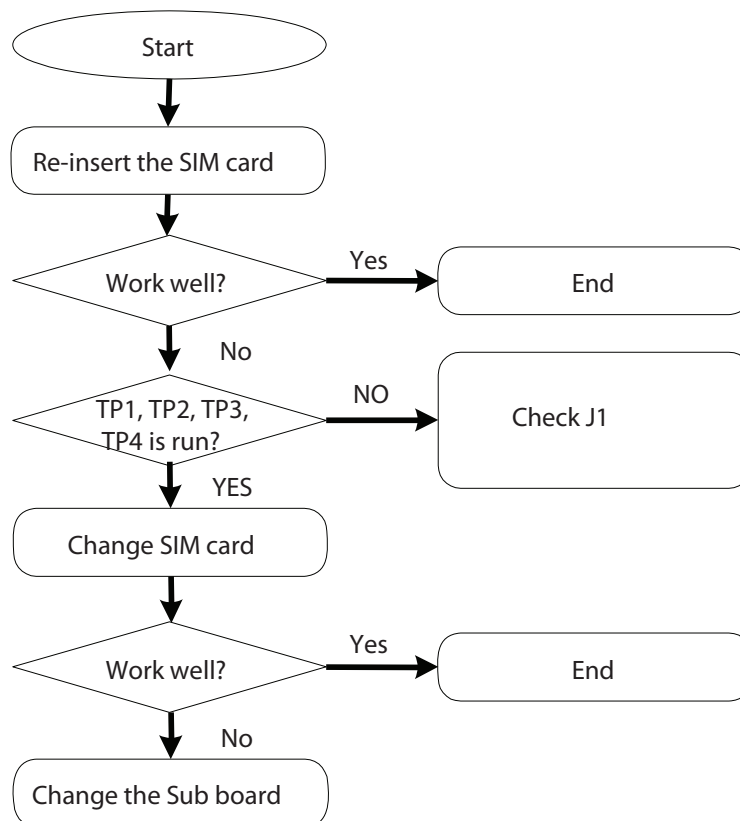
4. TROUBLE SHOOTING



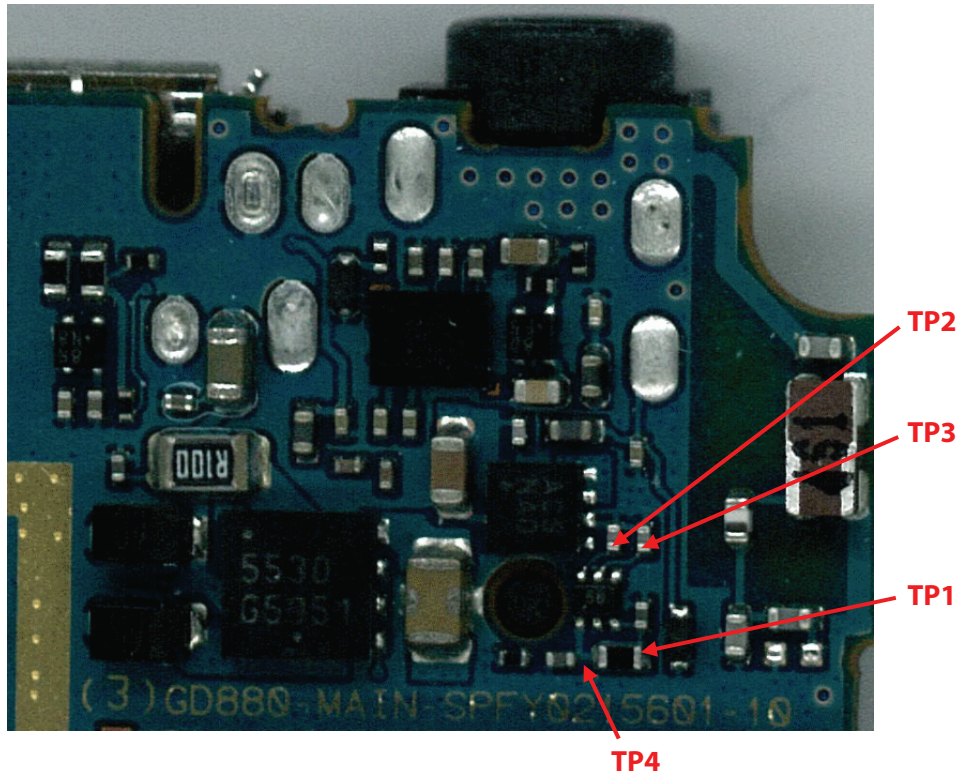
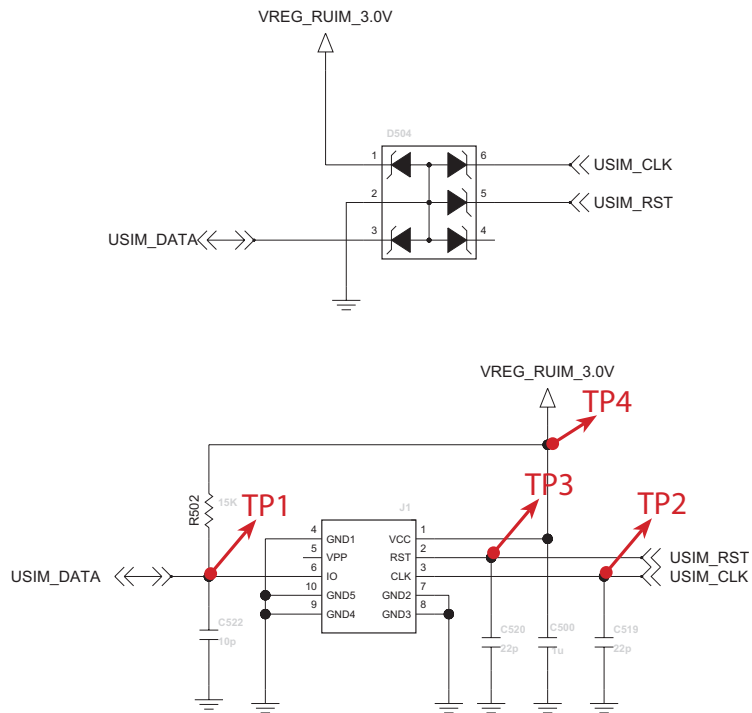
4.17 SIM Detect Troubleshooting

USIM Initial sequence of GD880 is :

SIM_CLK,SIM_RST,SIM_IO triggered → VRUIM_3.0V go to 2.8V → SIM IF work



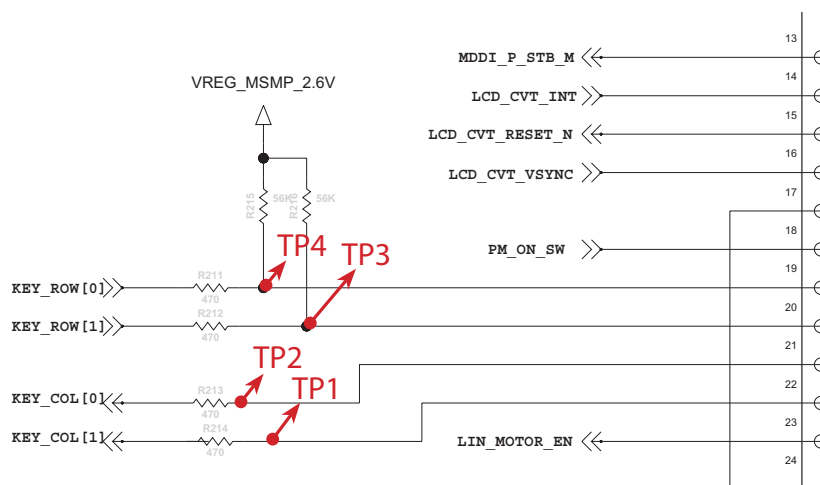
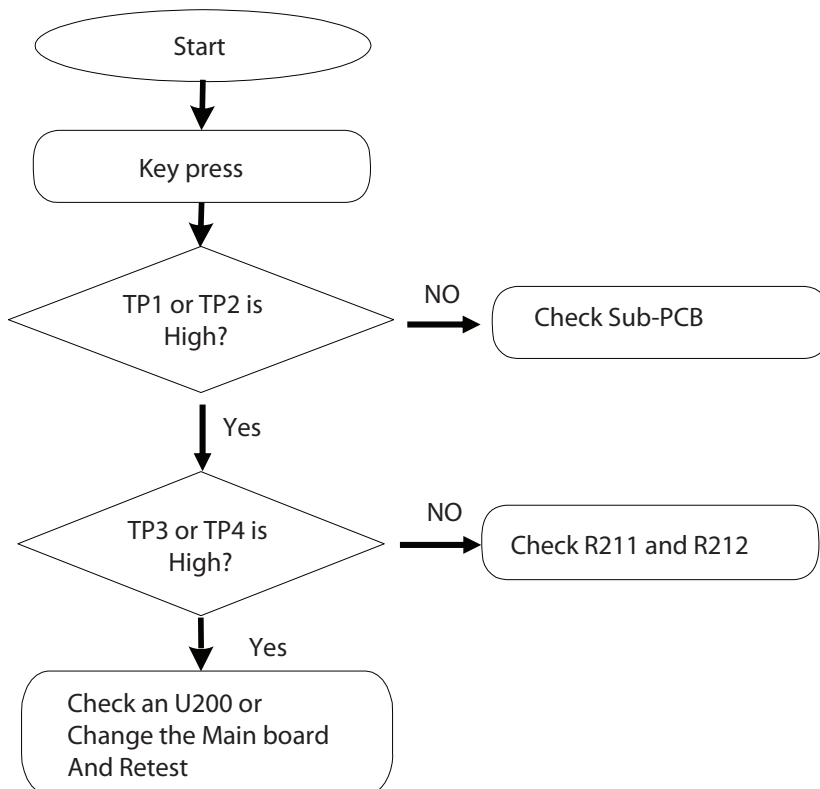
4. TROUBLE SHOOTING



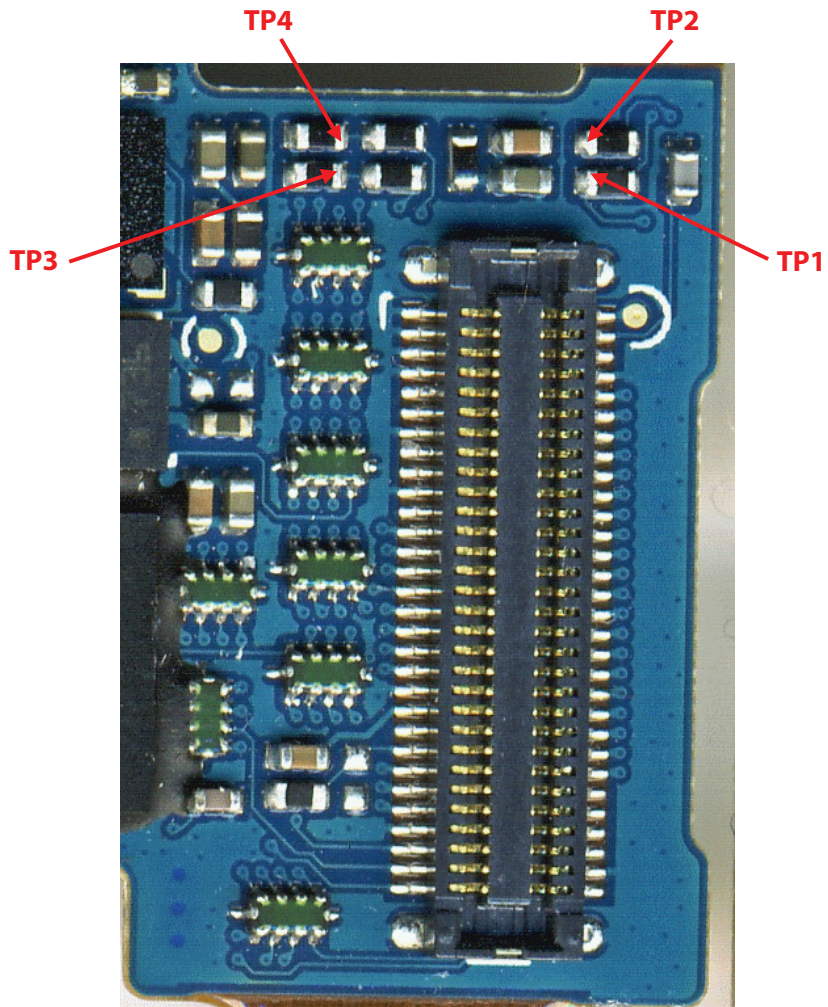
4.18 Side Key Troubleshooting

There are 2 main Key, Volume and Camera Key, which is connected to Sub-PCB.

Volume Key consists of Volume up and Volume down. Also, Camera Key is composed of Focus and Shutter.



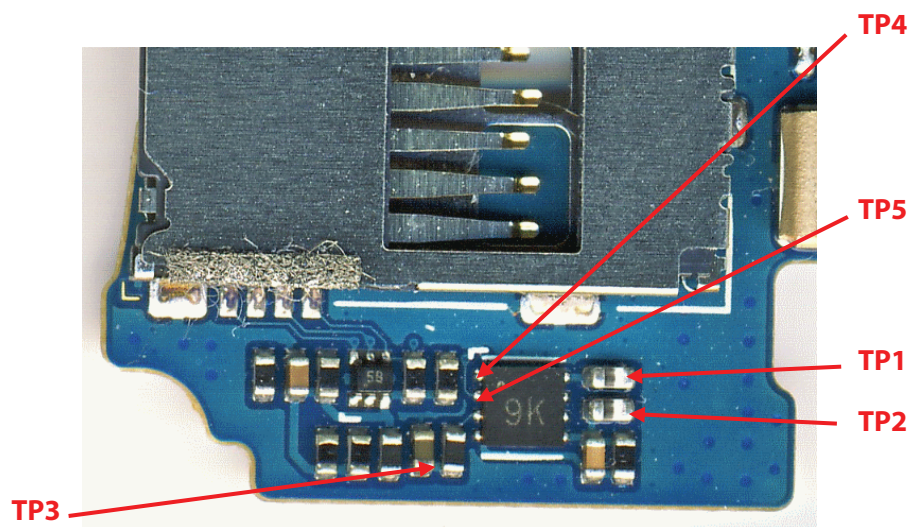
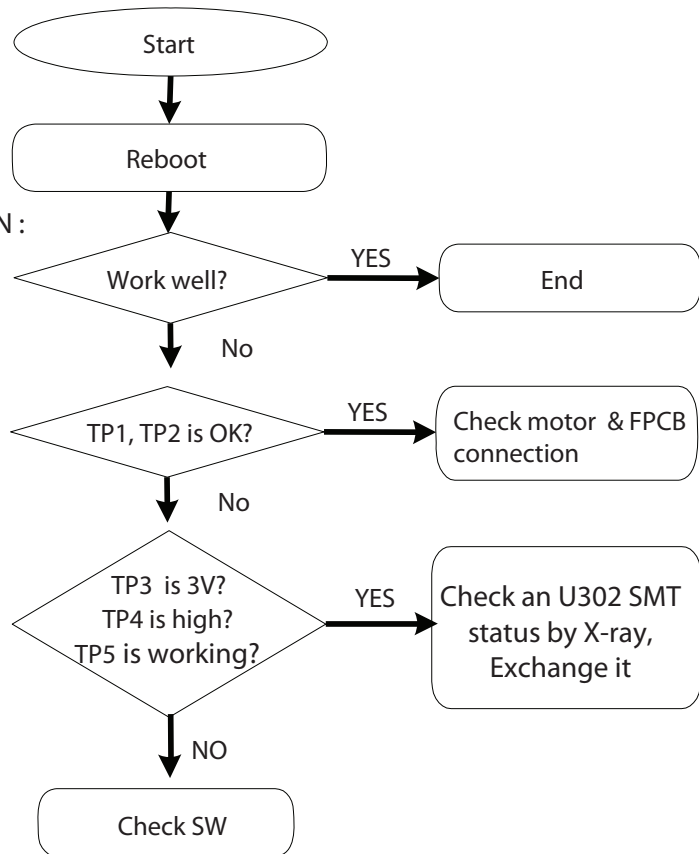
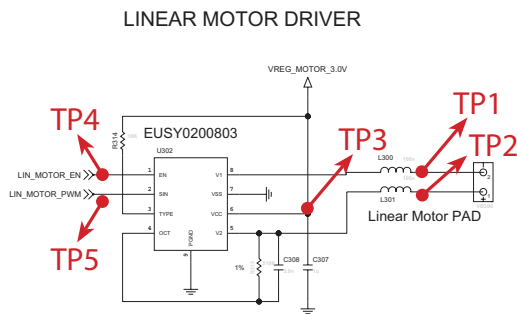
4. TROUBLE SHOOTING



4.19 LINEAR MOTOR

Linear Motor trouble shooting can be processed as below :

U302 uses the PWM pulse.
VB300_LMOTOR_P and VB300_LMOTOR_N :
output of U302.



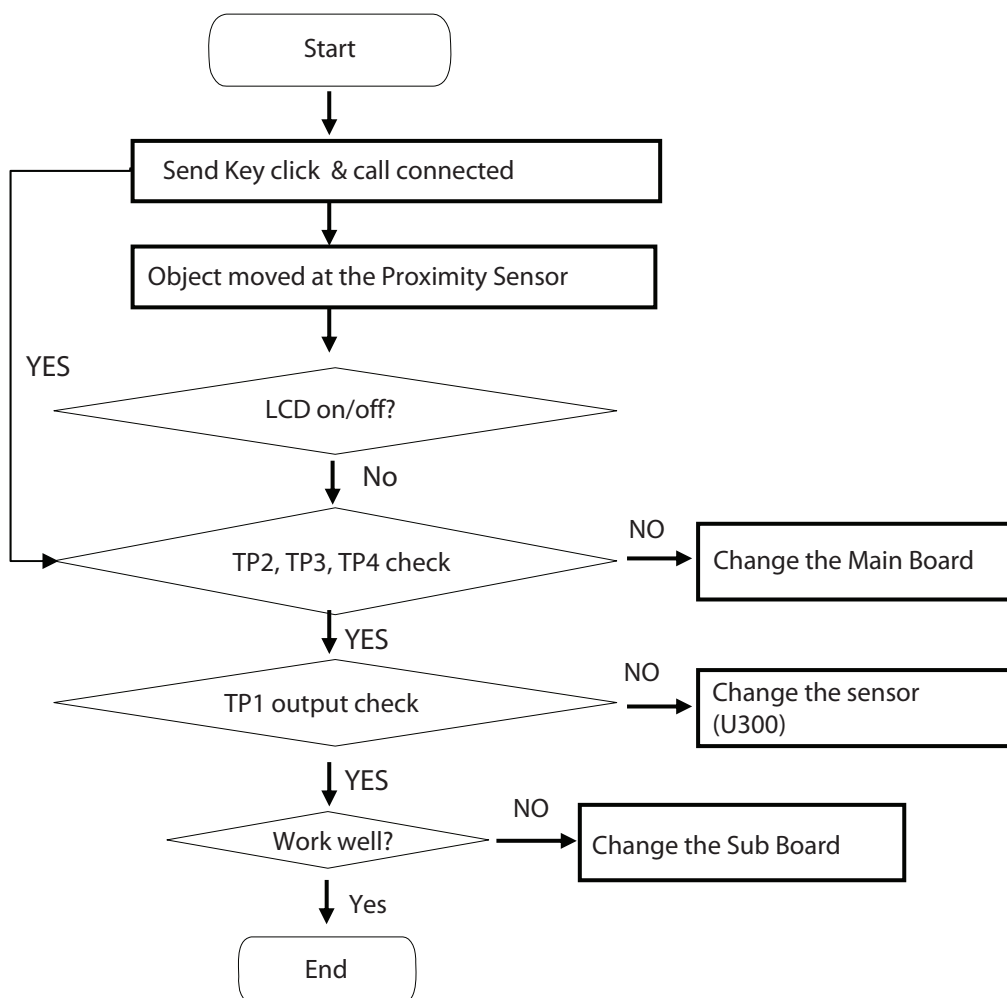
4. TROUBLE SHOOTING

4.20 Proximity Sensor on/off trouble

Proximity Sensor is worked as below :

Send Key click → Phone number click → Call connected → Object moved at the sensor

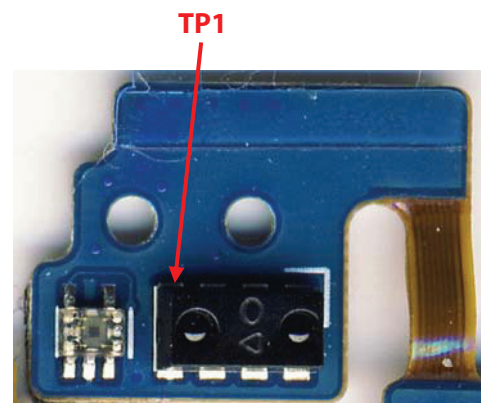
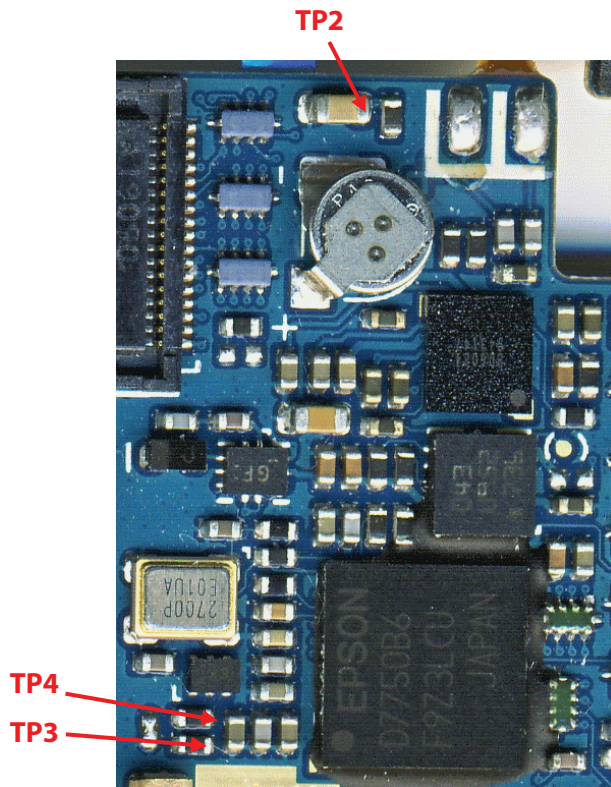
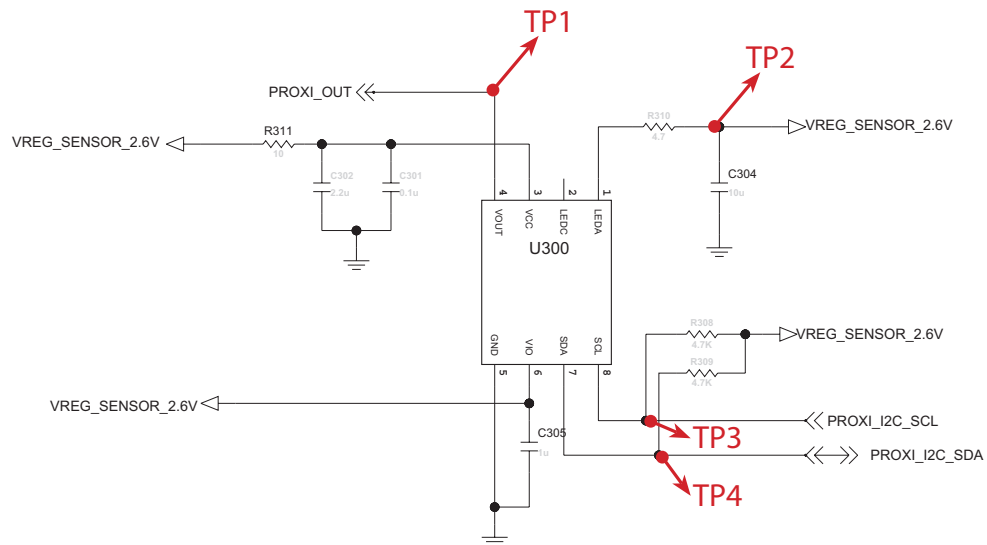
→ Control the screen's on/off operation automatically



4. TROUBLE SHOOTING

1) Measurement : U300

- VCC : VREG_SENSOR_2.6V (C304,R310)
- PROXI_OUT :(U300)
- PROXI_SDA / SCL : data / CLK pulse (R308, R309)



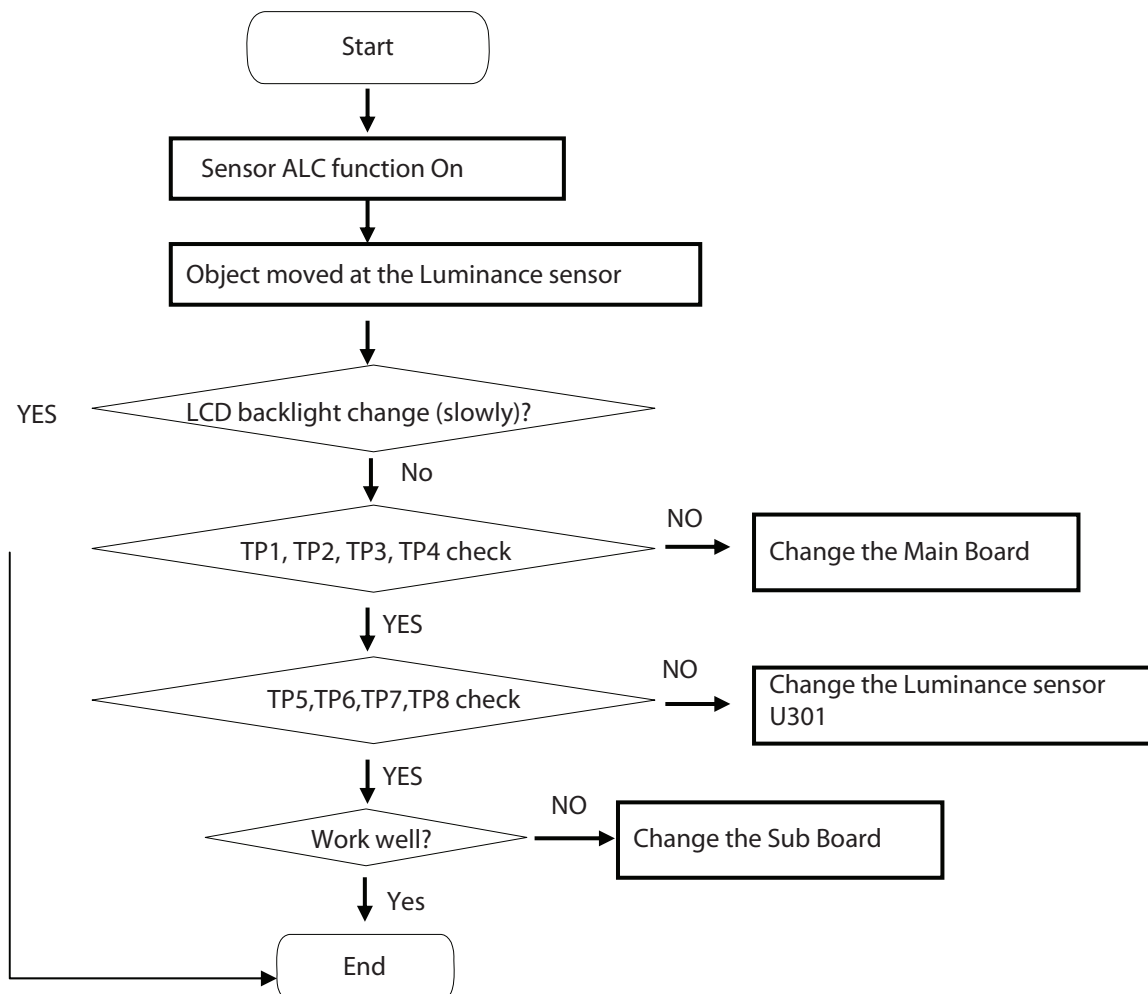
4. TROUBLE SHOOTING

4.21 Luminance Sensor on/off trouble

Luminance Sensor is worked as below :

Sensor ALC function On → Object moved at the Luminance sensor

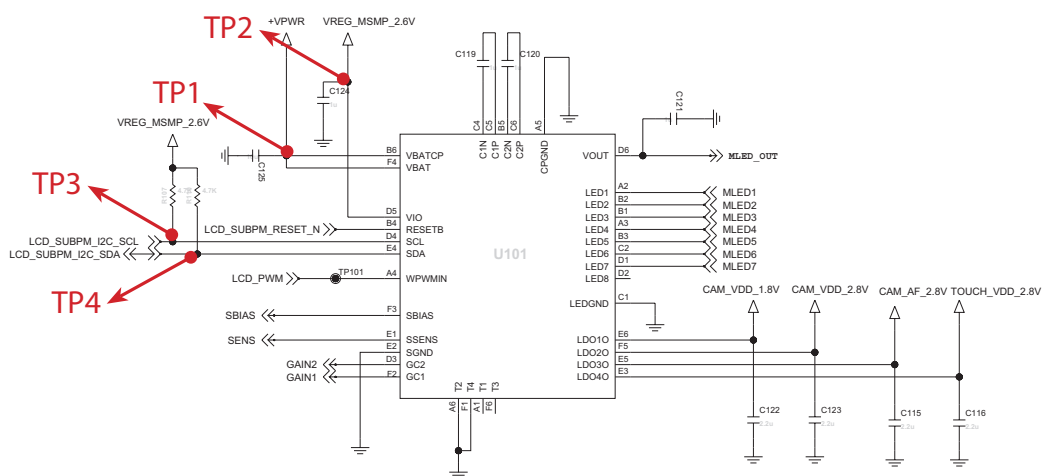
→ automatically controls brightness of the display backlight. (Very slowly)



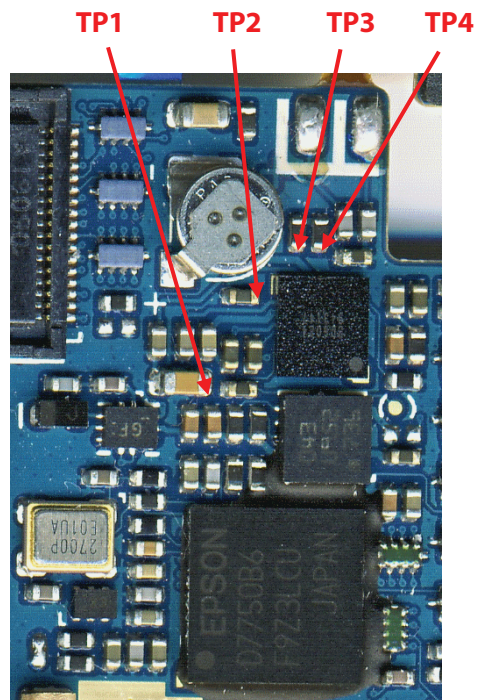
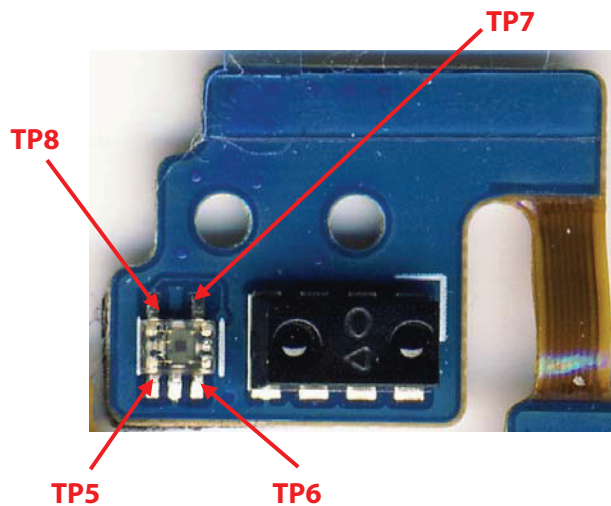
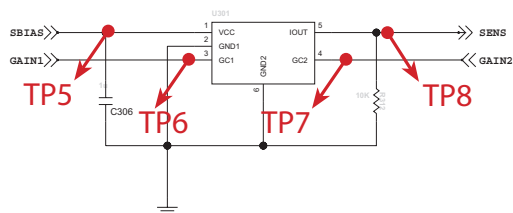
4. TROUBLE SHOOTING

- 1) Measurement : Main U801 SPK FPCB U101
- +VPWR : 4V (C125)
 - VREG_MSMP_2.6V : 2.6V (C124)
 - U101 (GC1 / GC2) : data pulse
 - U301 (SENS)
 - LCD_SUBPM_I2C_SDA / SCL : data / CLK pulse (R107, R110)

LCD Charge-pump (with ALC)



Ambient Light Sensor

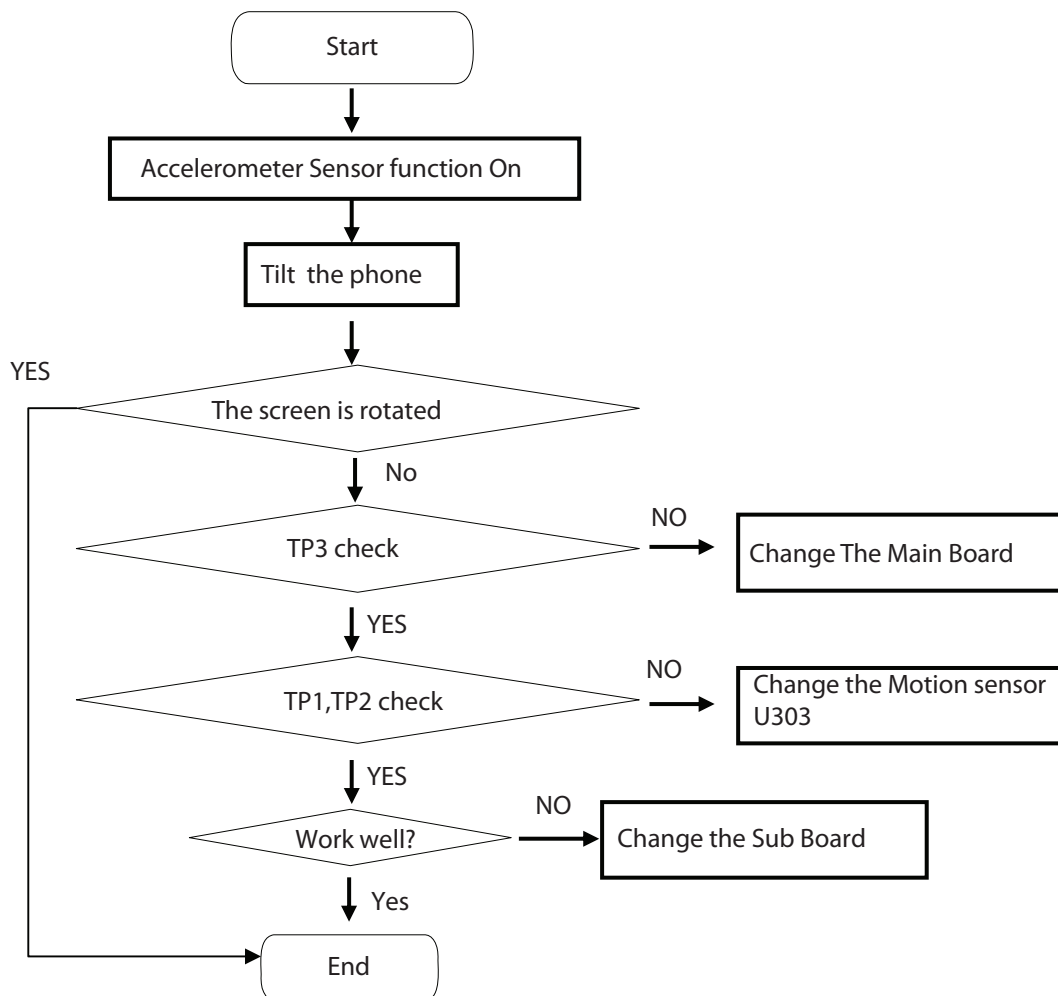


4. TROUBLE SHOOTING

4.22 Motion Sensor on/off trouble

Motion Sensor is worked as below :

Accelerometer Sensor function On → Tilt the phone (90°) → The screen is had rotated automatically.



4. TROUBLE SHOOTING

1) Measurement : Sub board

- VREG_MSMP_2.6V : 2.6V (C309)
- MOTION_INT : High enable (TP300)
- MOTION_I2C_SDA / SCL : data / CLK pulse (R315, R316)

Motion Sensor

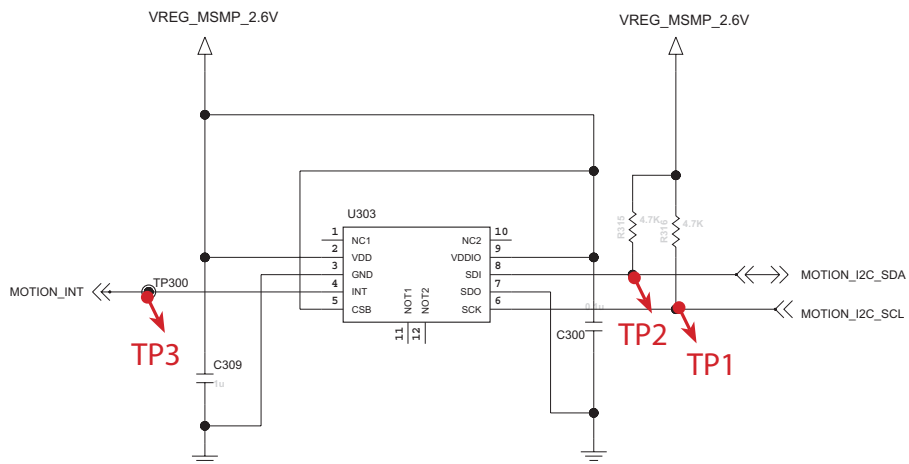
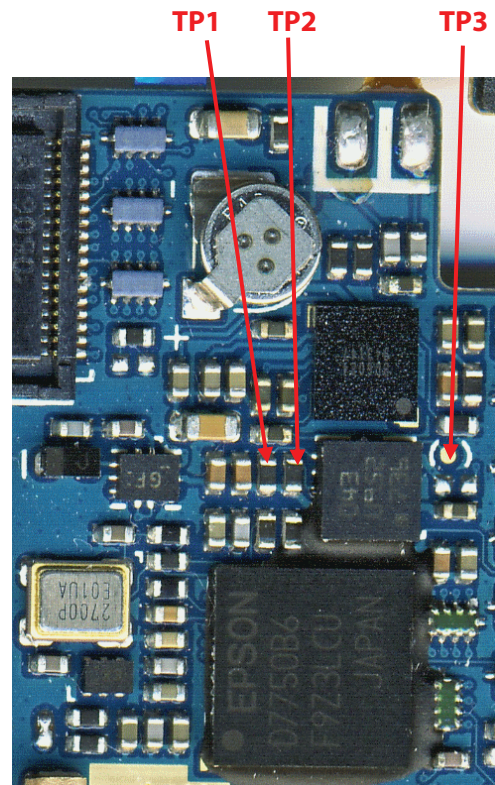
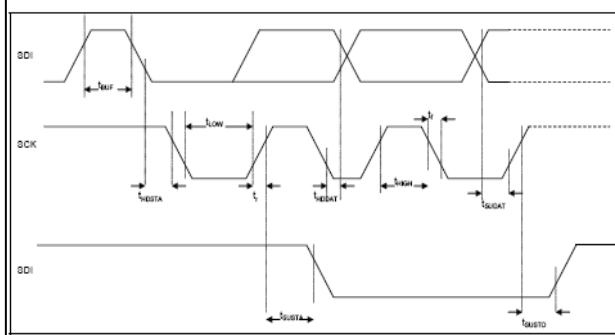
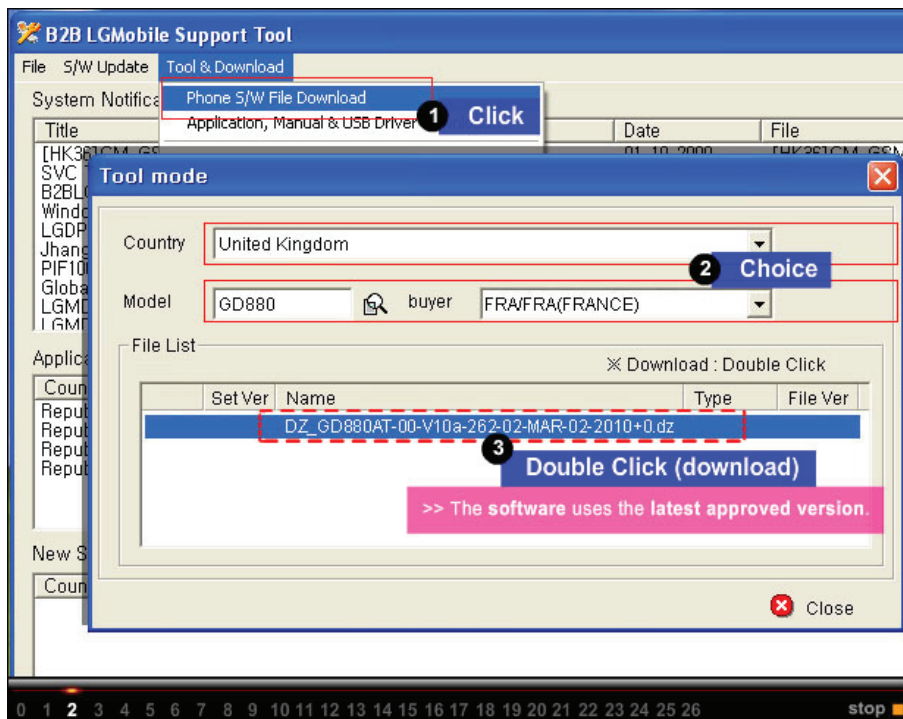
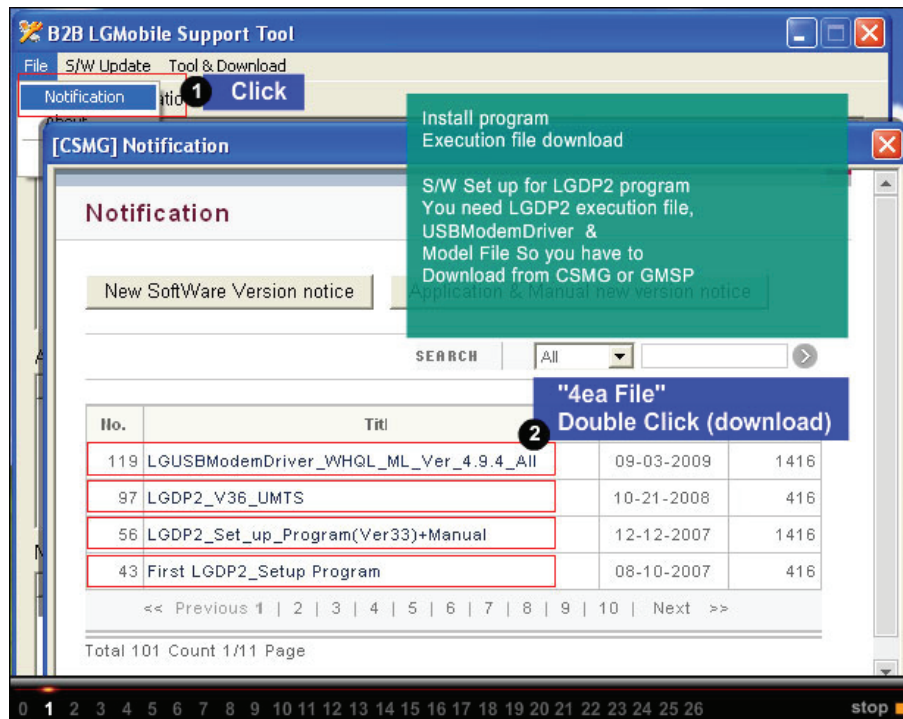


Figure 11: Timing diagram for I²C interface (SDI=SDA)

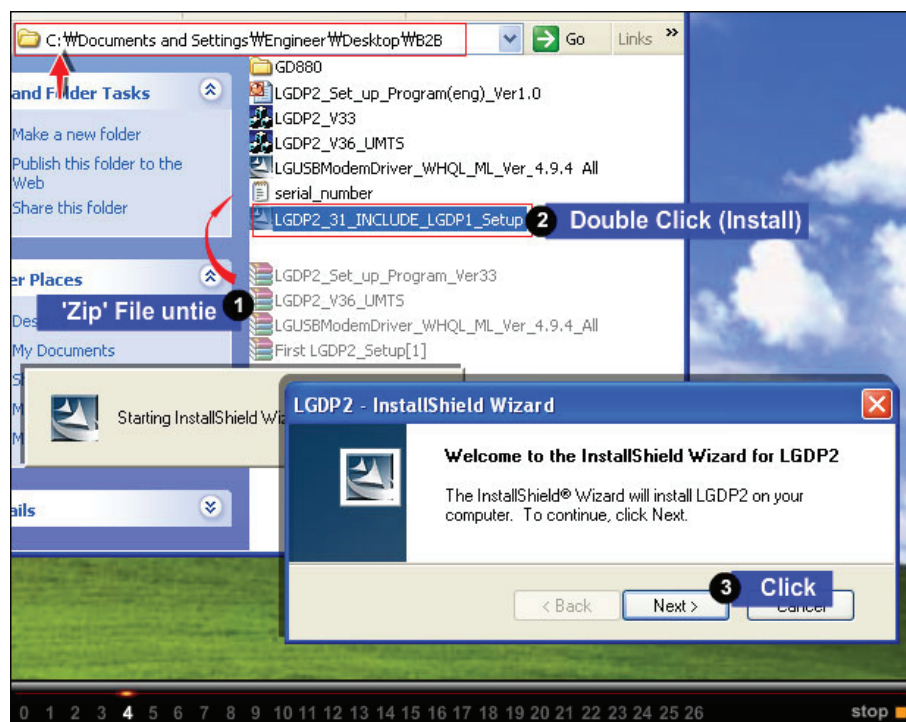
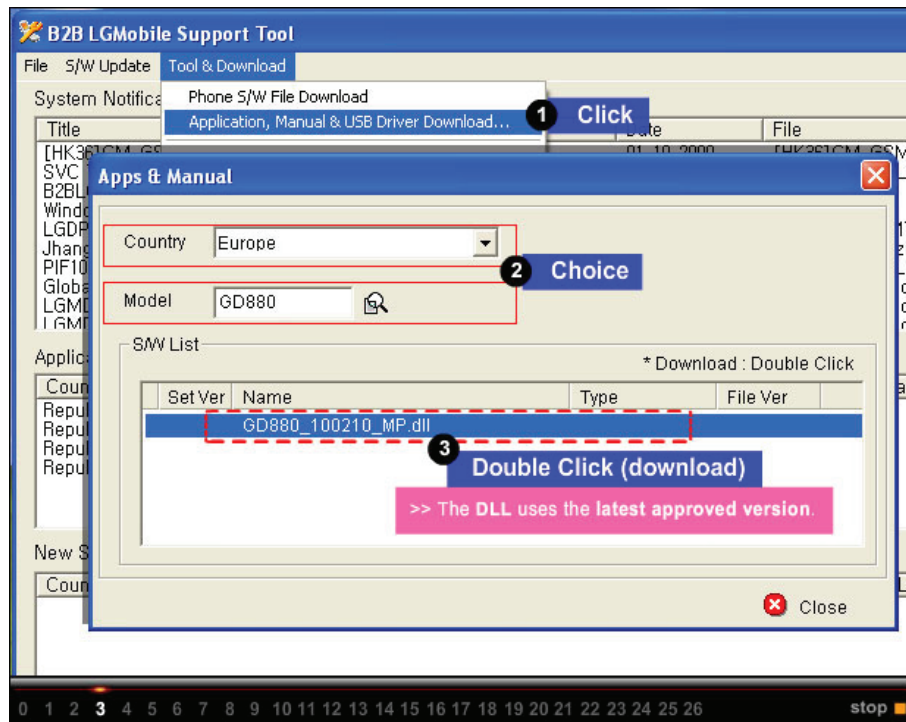


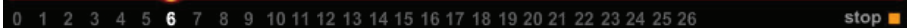
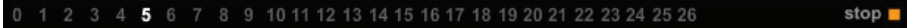
5. DOWNLOAD

5. DOWNLOAD

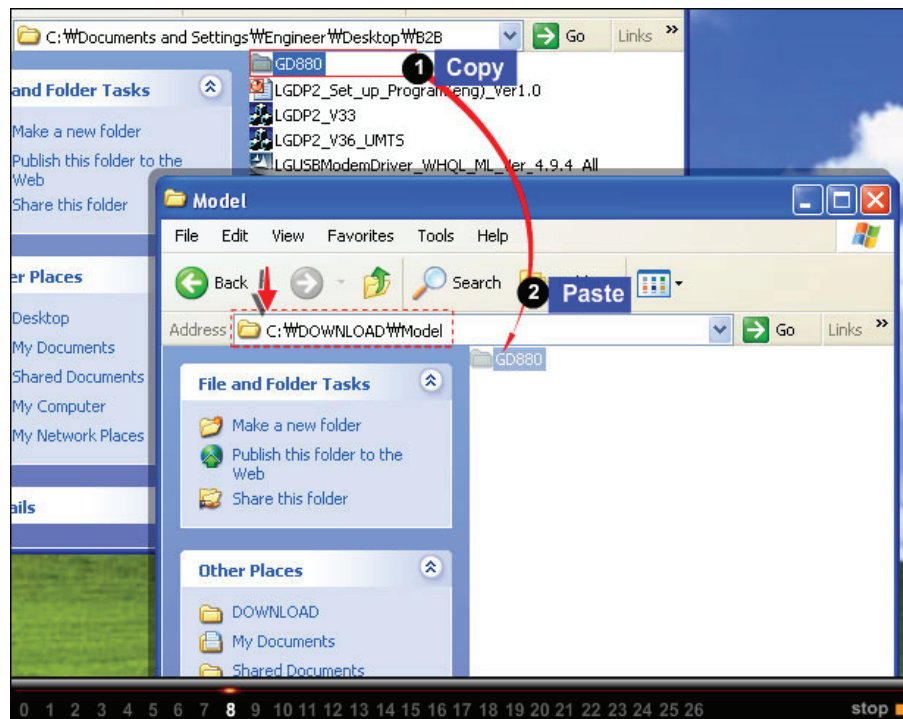
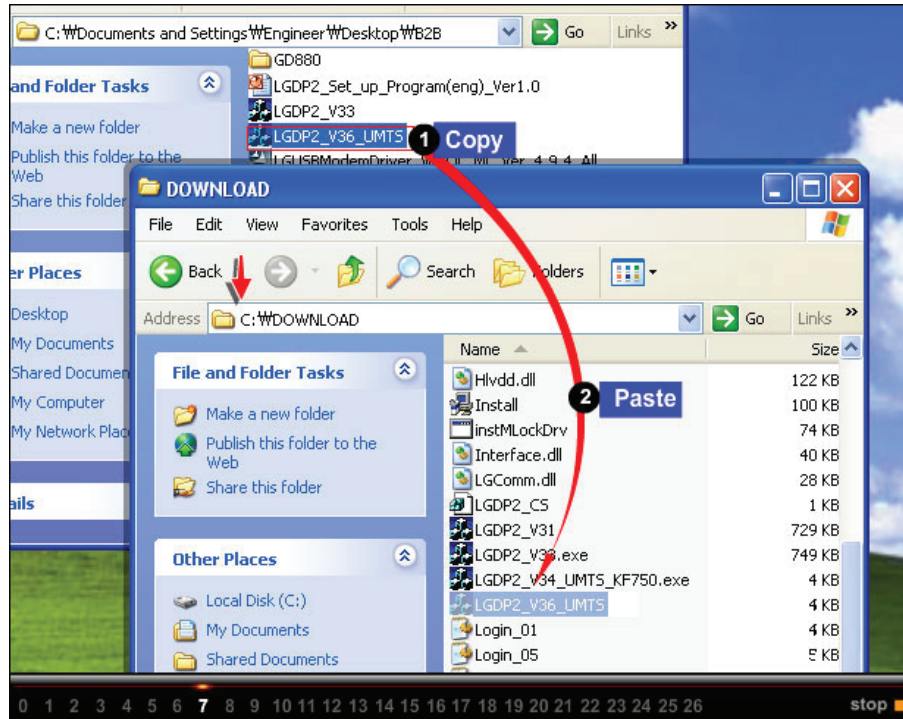


5. DOWNLOAD

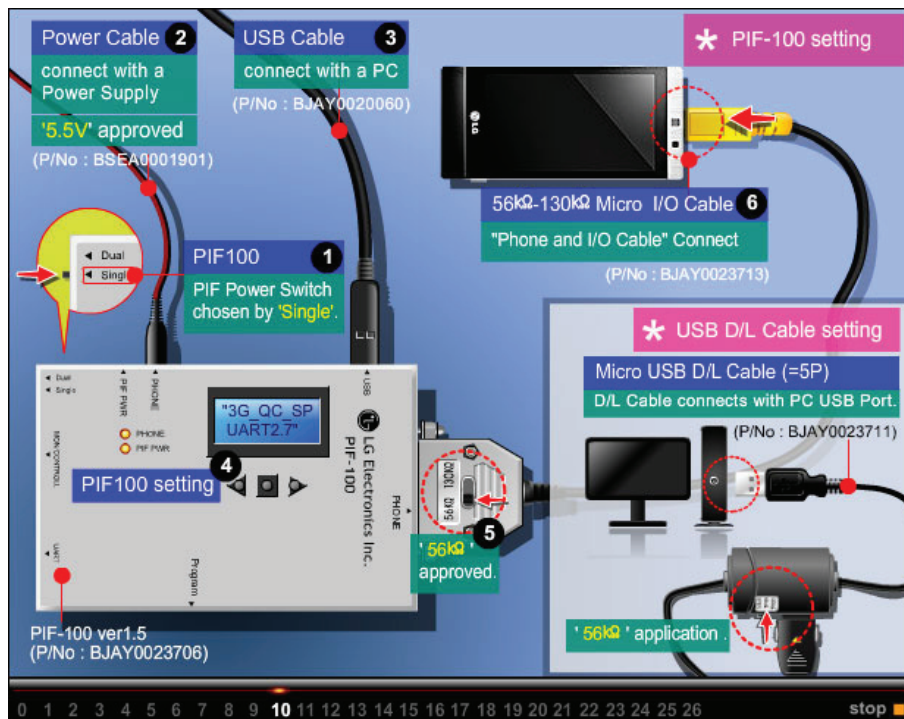
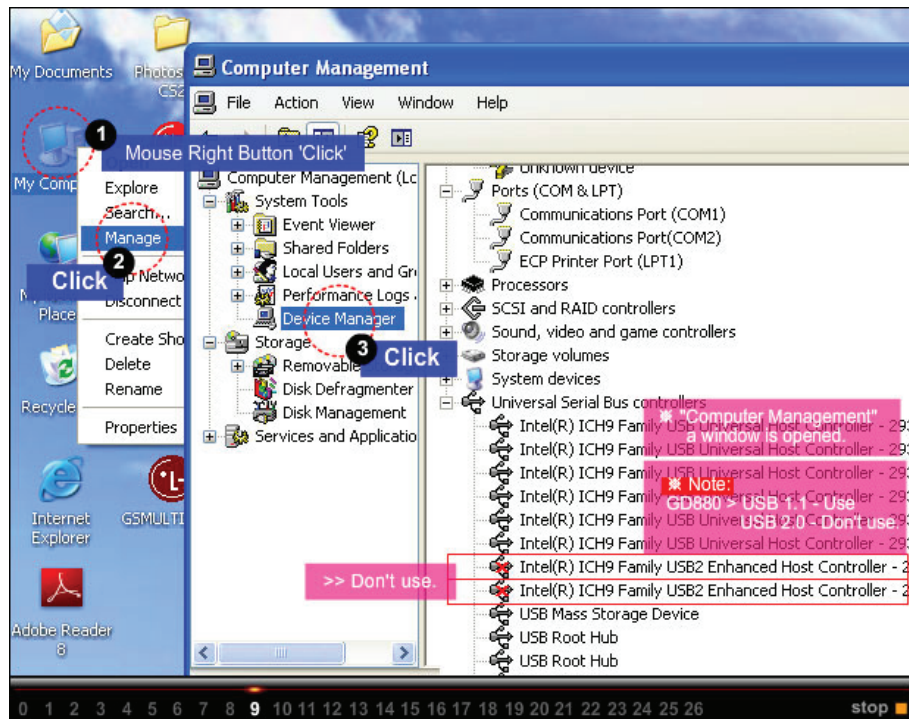




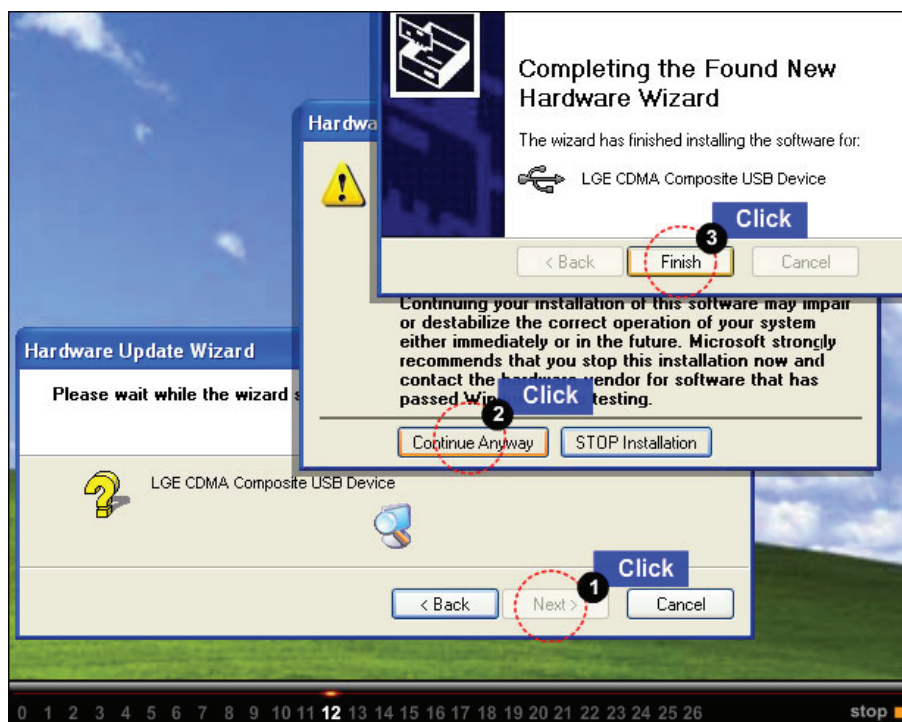
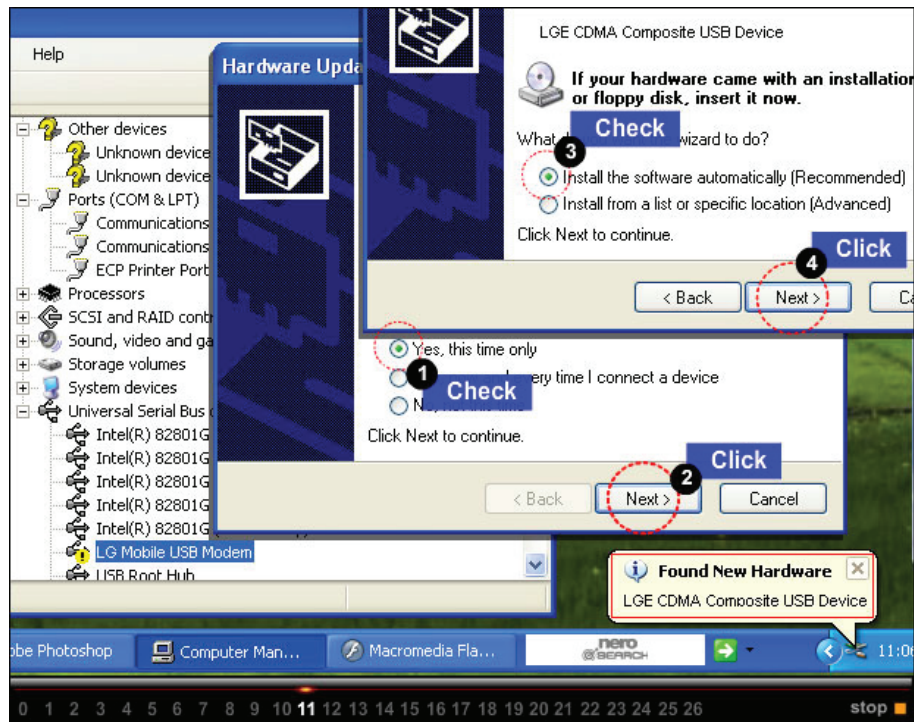
5. DOWNLOAD



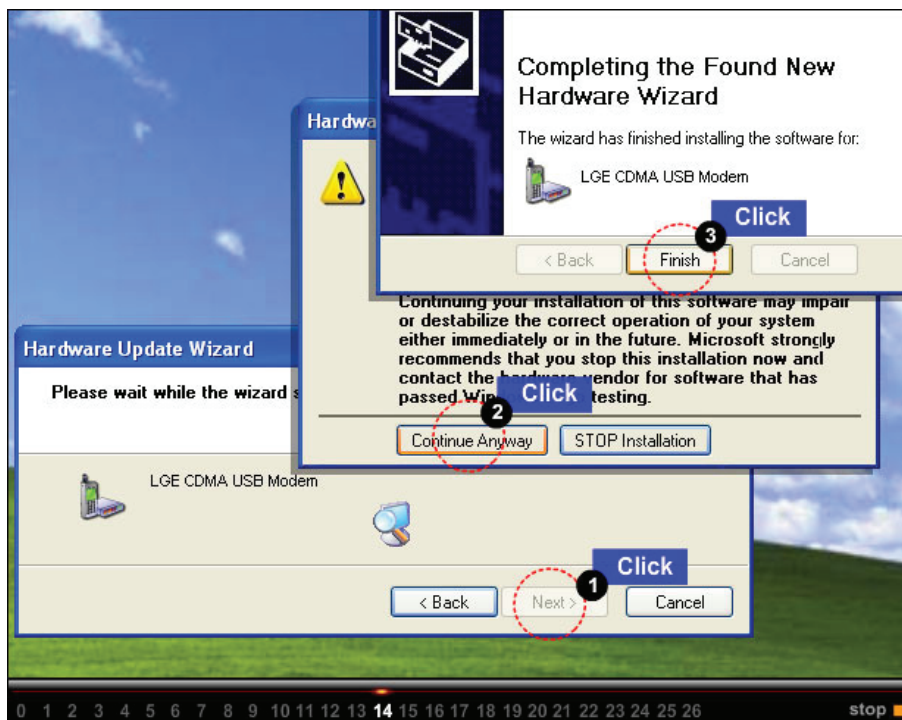
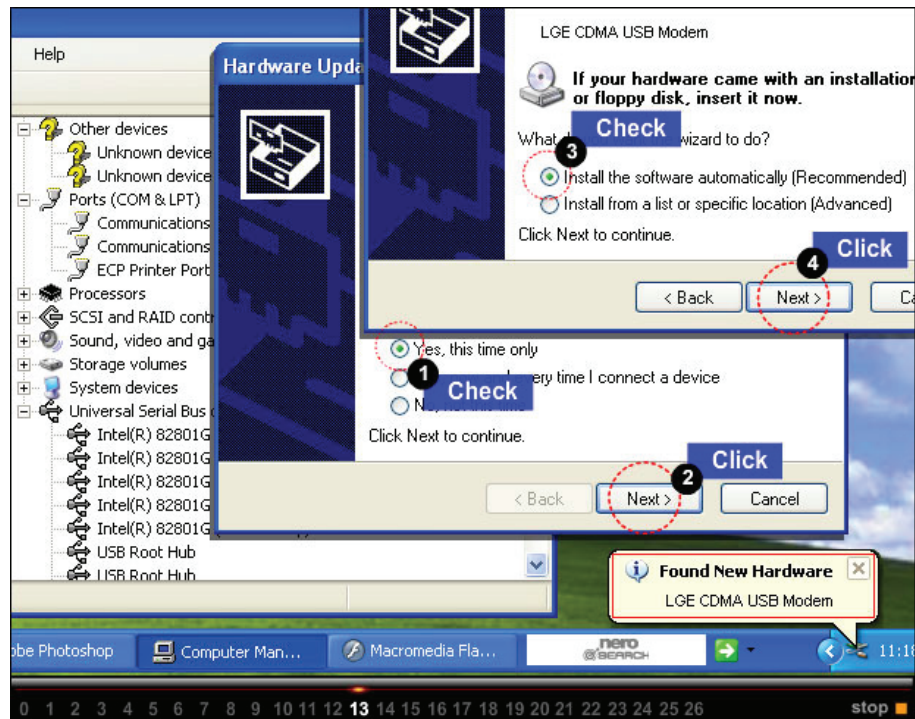
5. DOWNLOAD



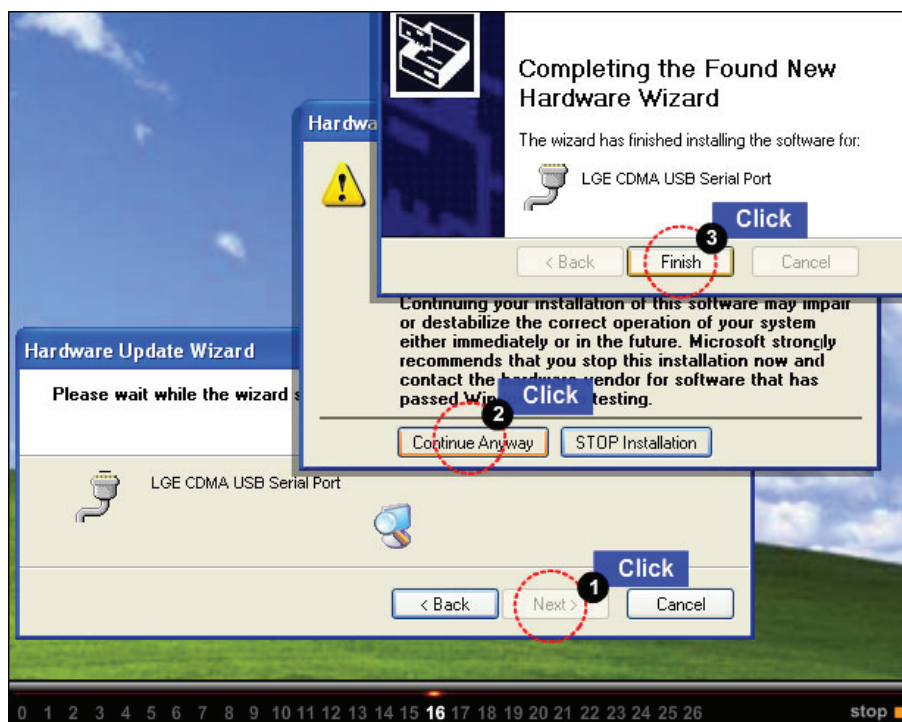
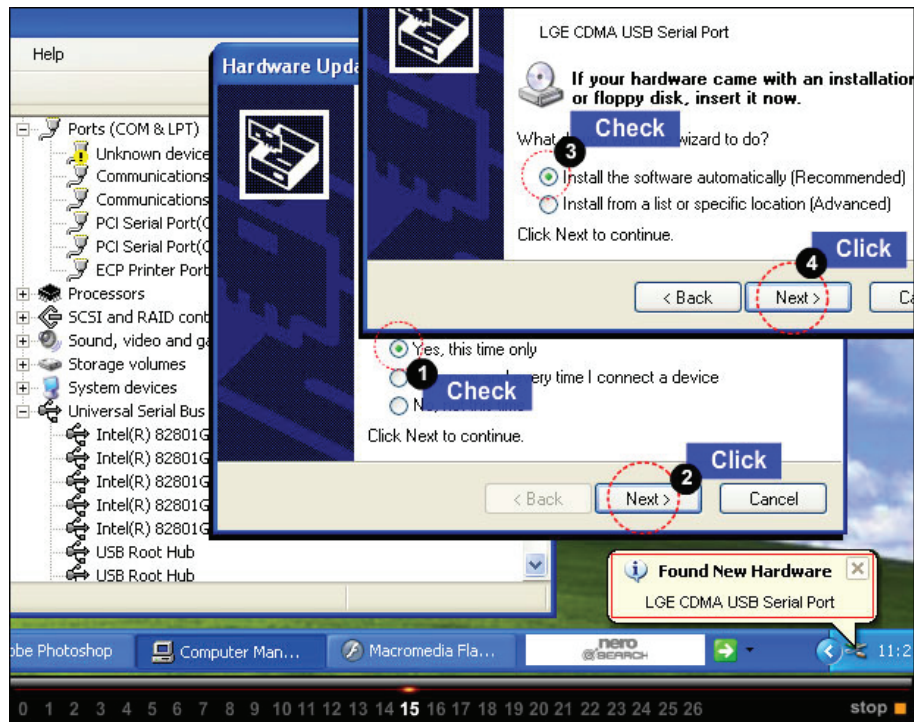
5. DOWNLOAD



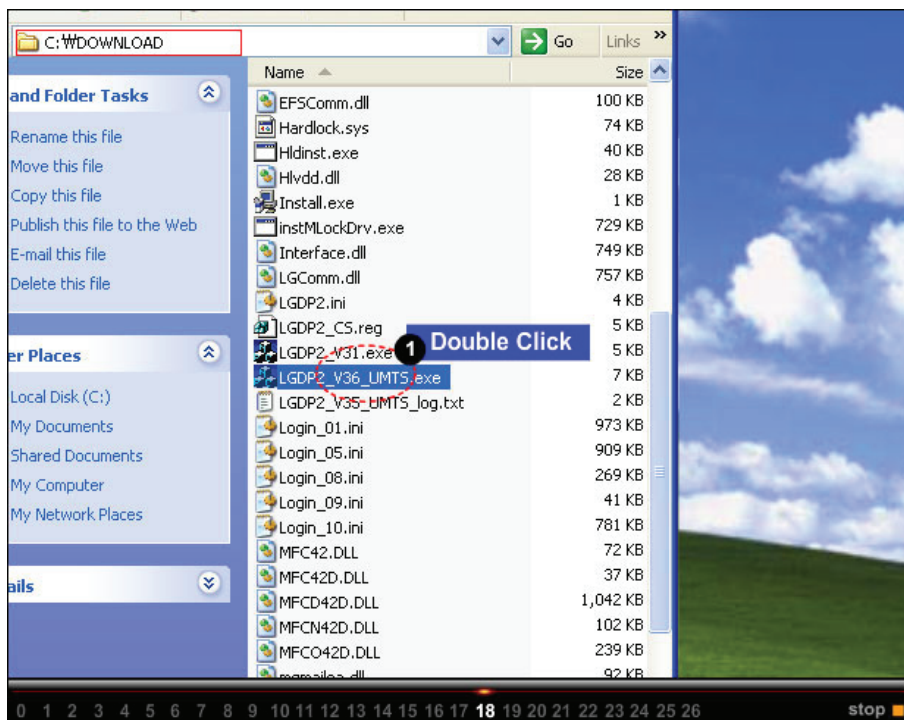
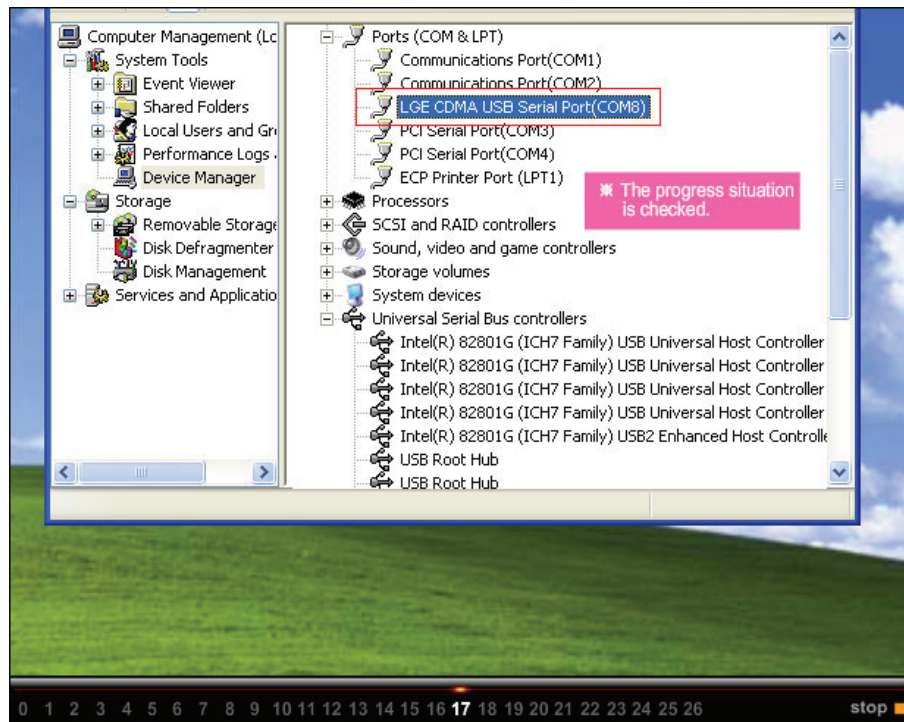
5. DOWNLOAD



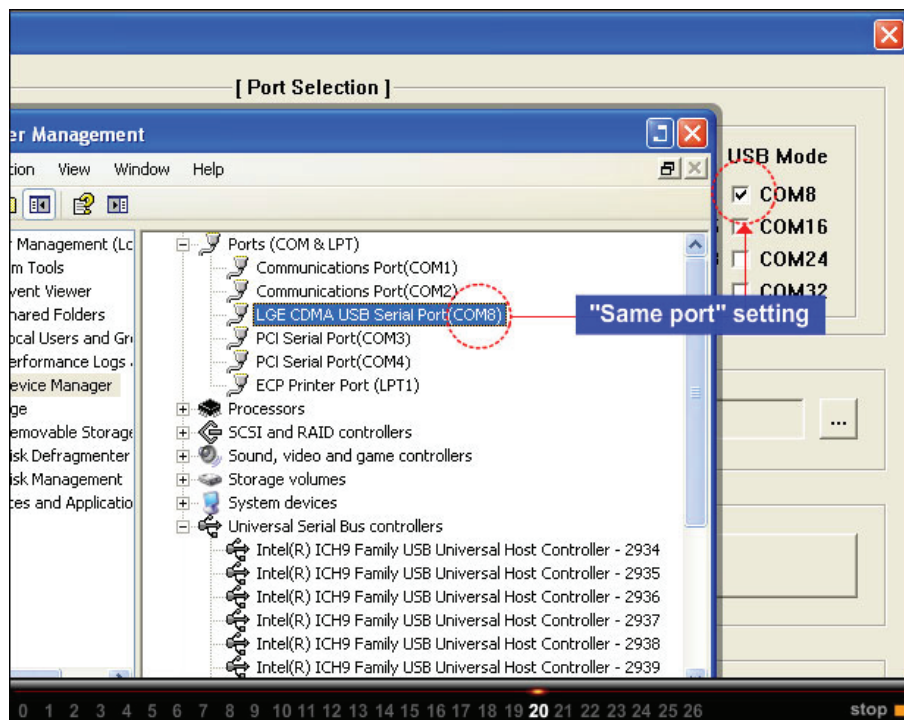
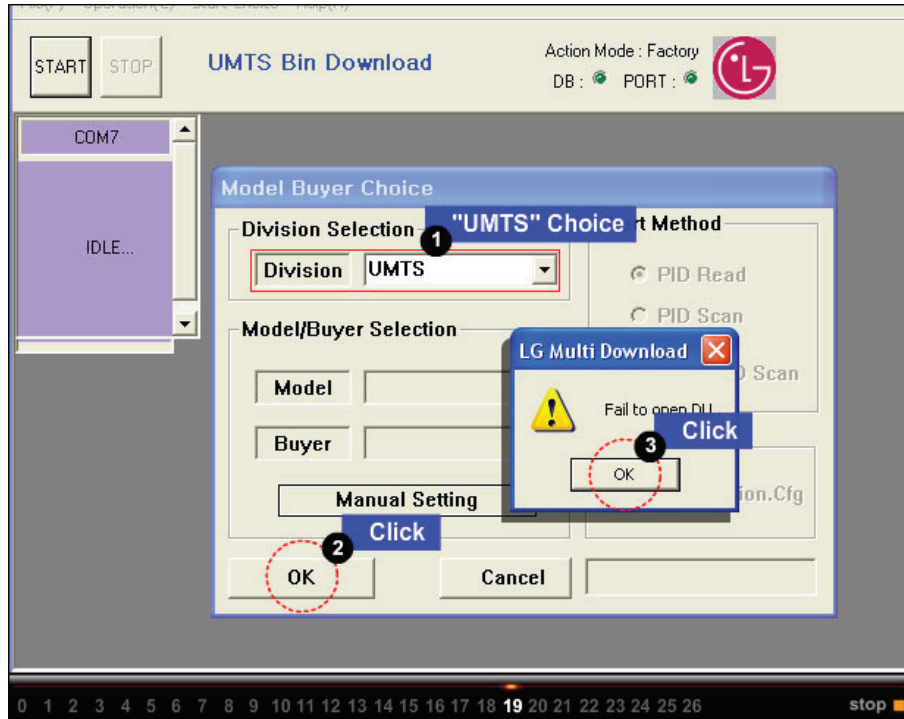
5. DOWNLOAD



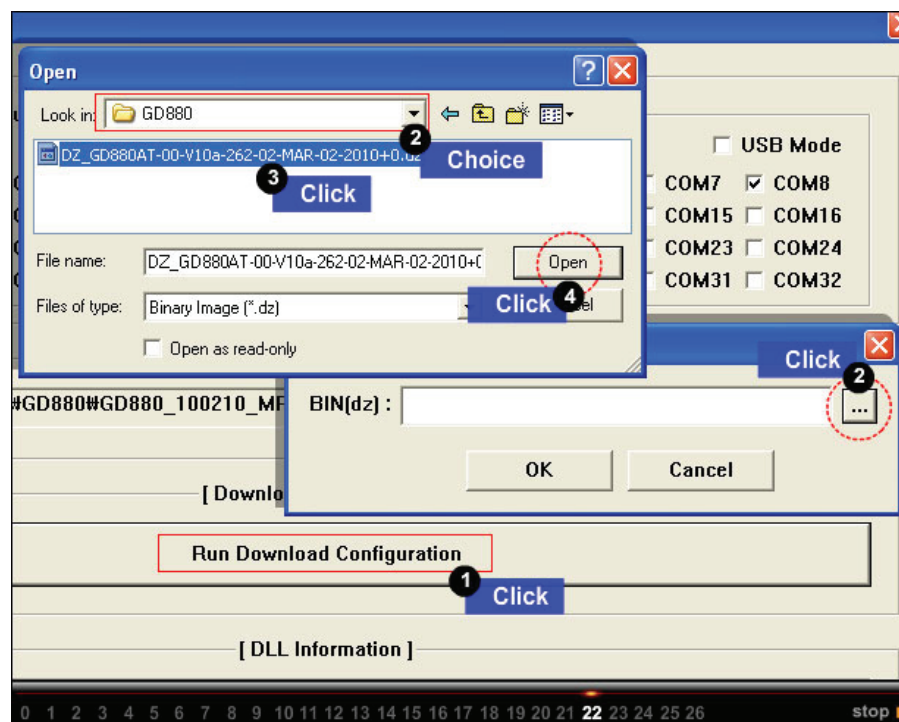
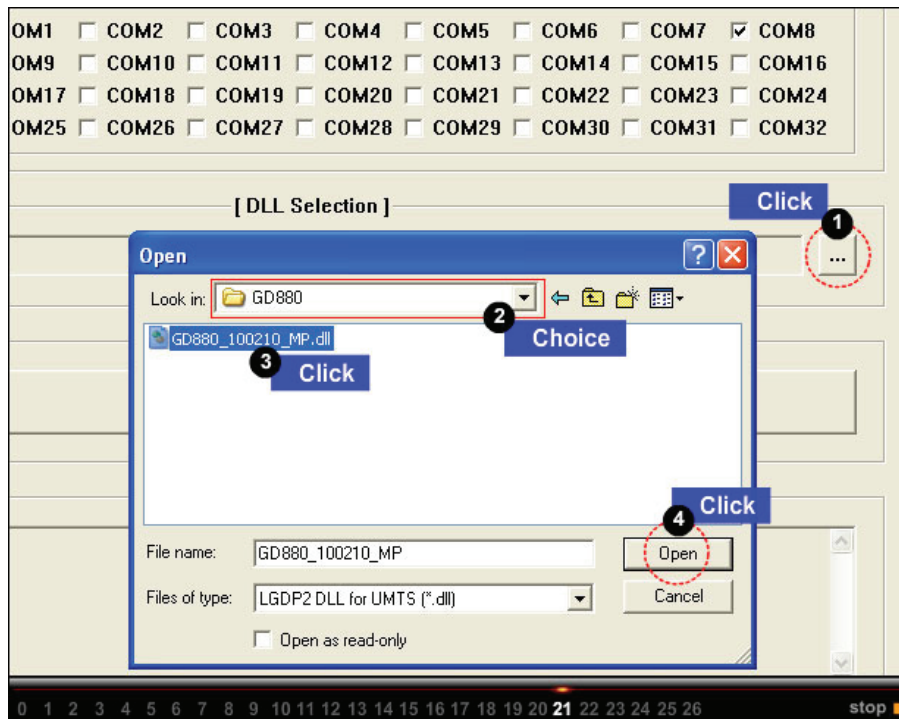
5. DOWNLOAD



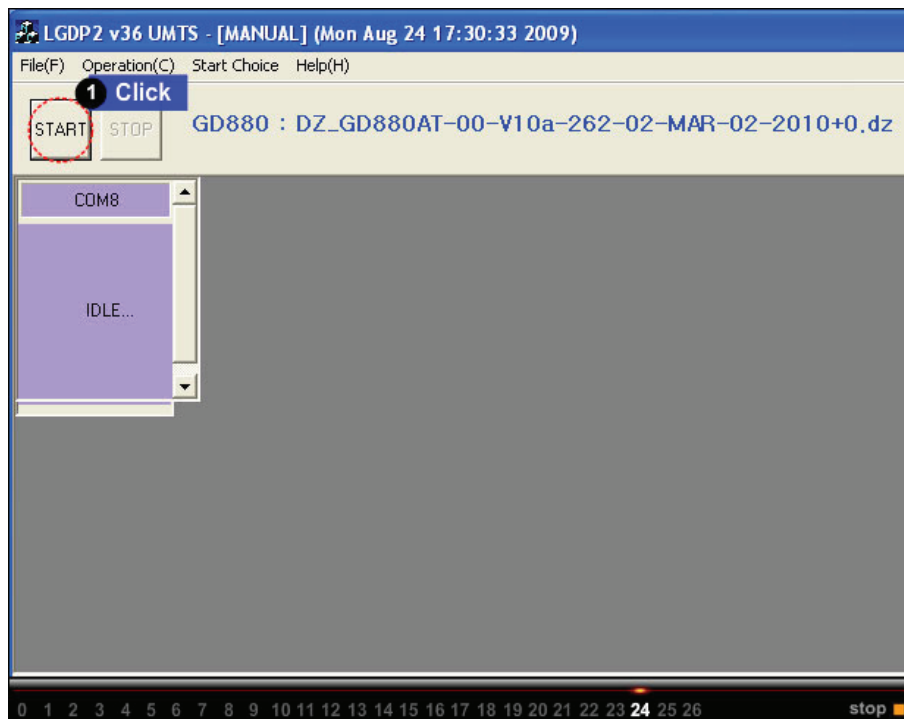
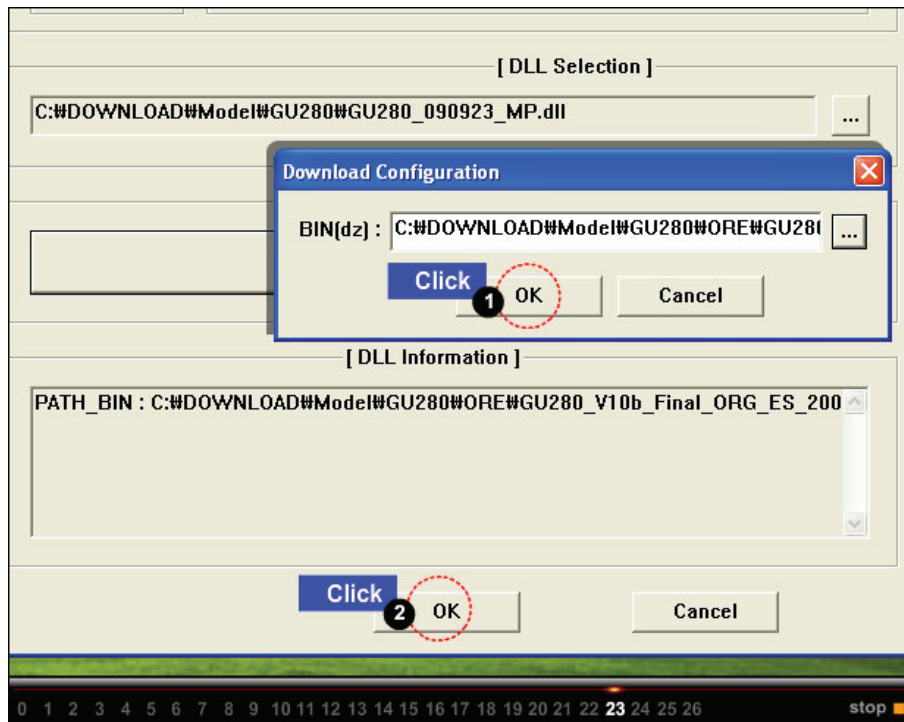
5. DOWNLOAD



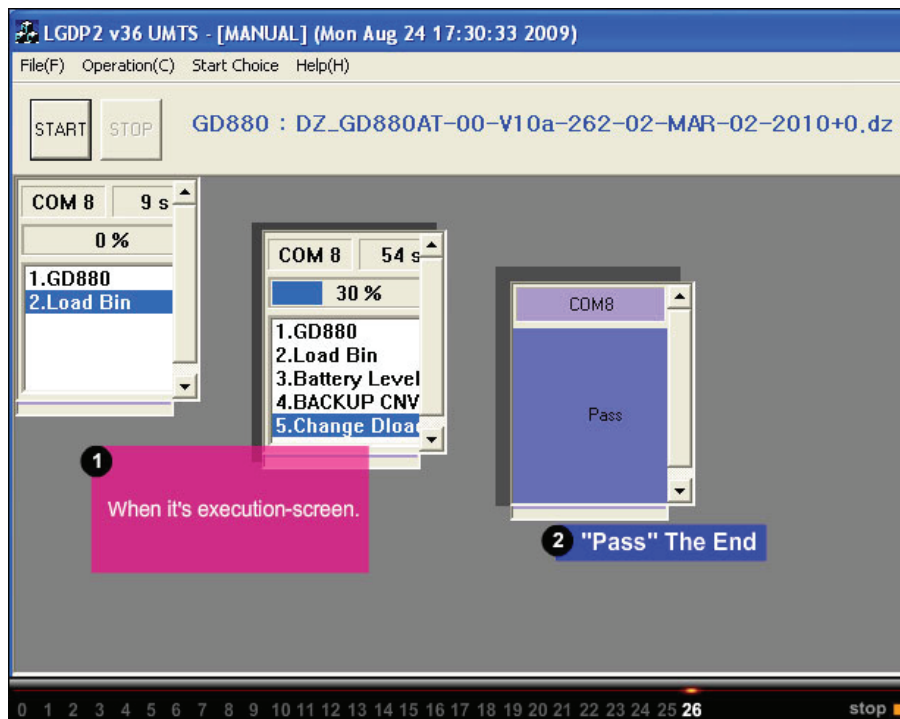
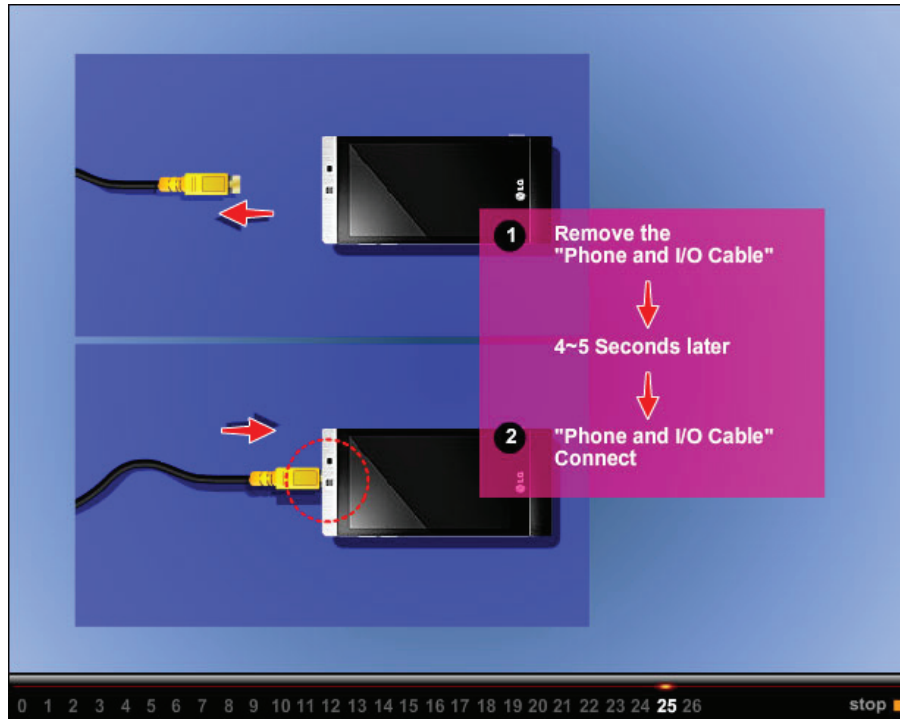
5. DOWNLOAD



5. DOWNLOAD

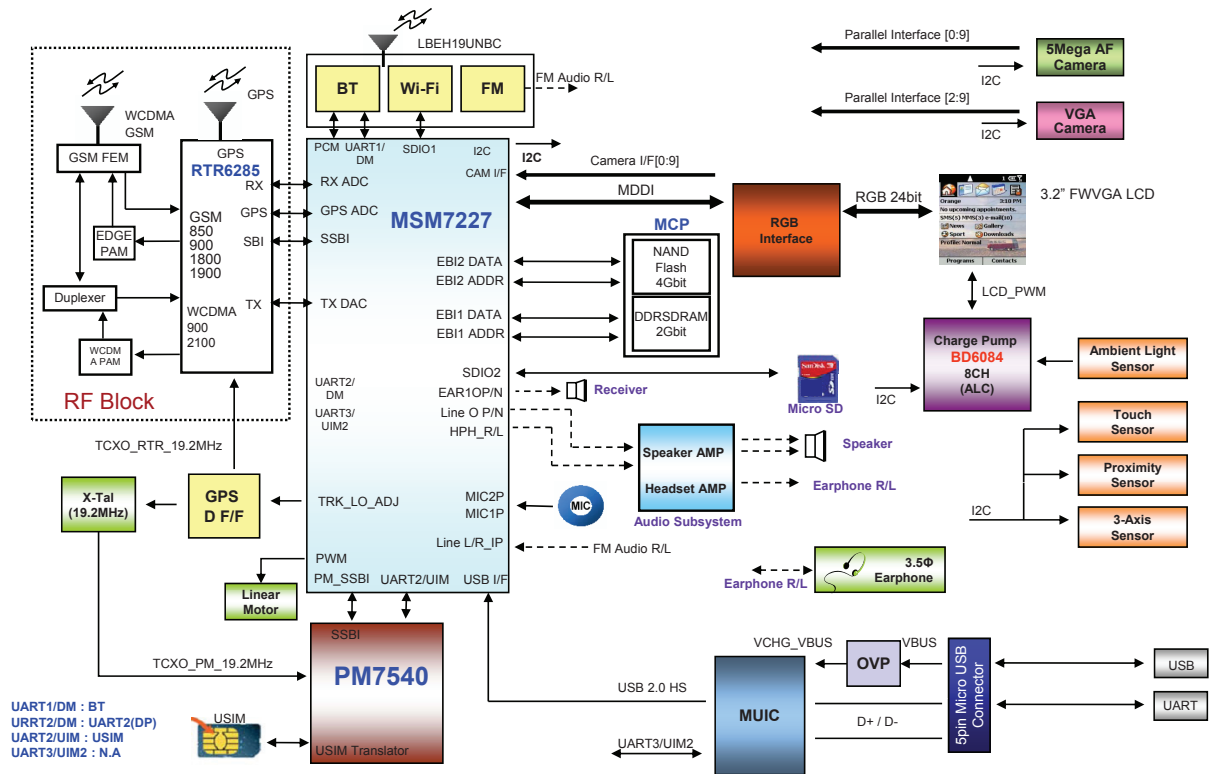


5. DOWNLOAD



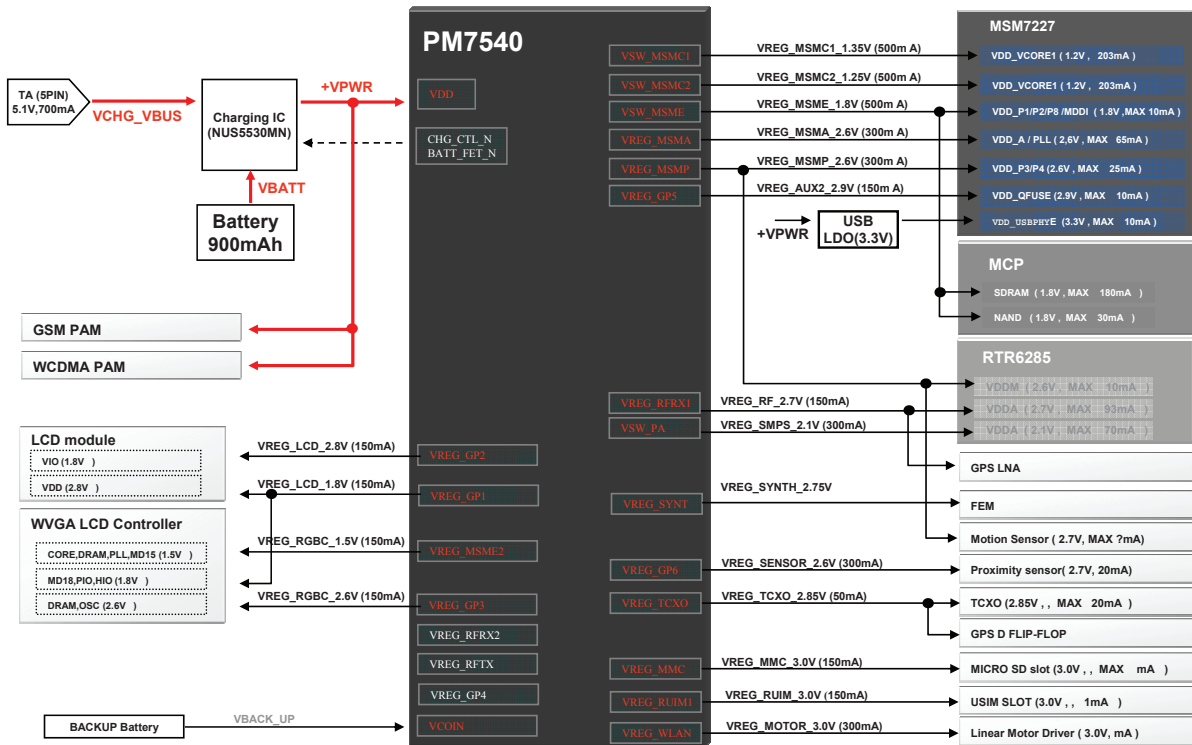
6. BLOCK DIAGRAM

MINI Block Diagram

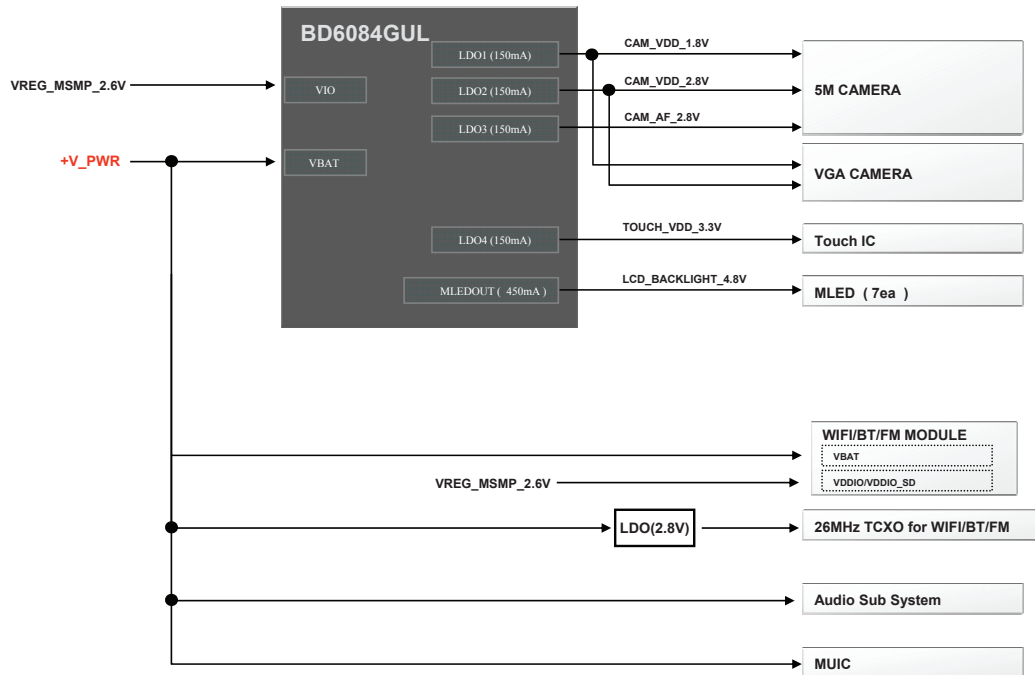


6. BLOCK DIAGRAM

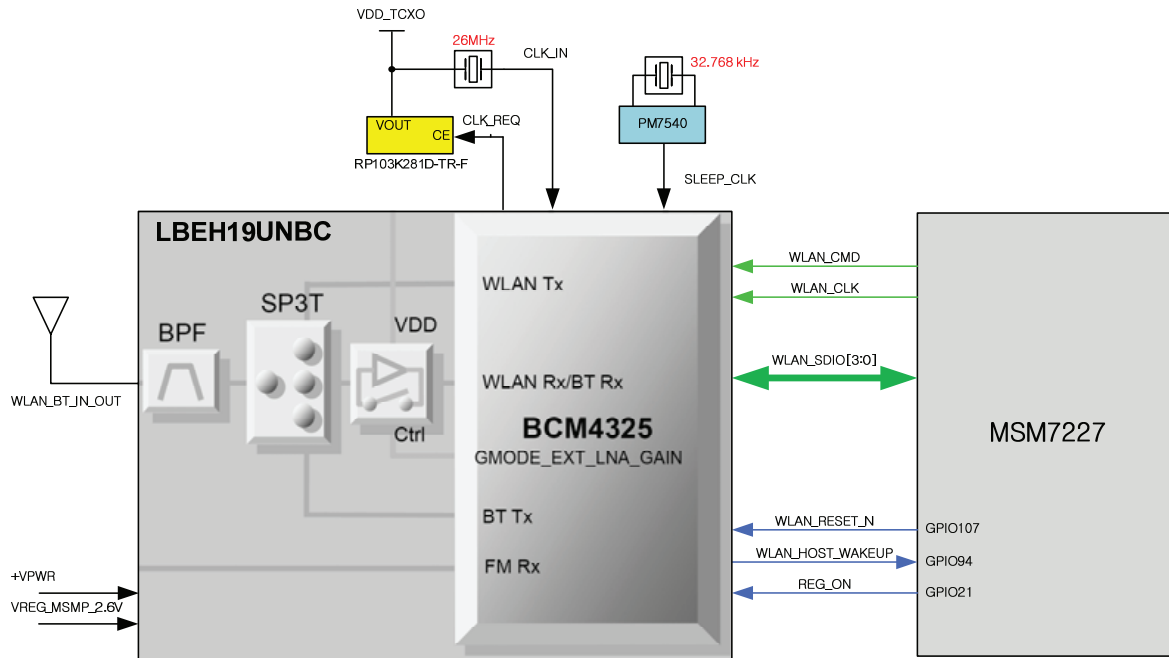
POWER Block



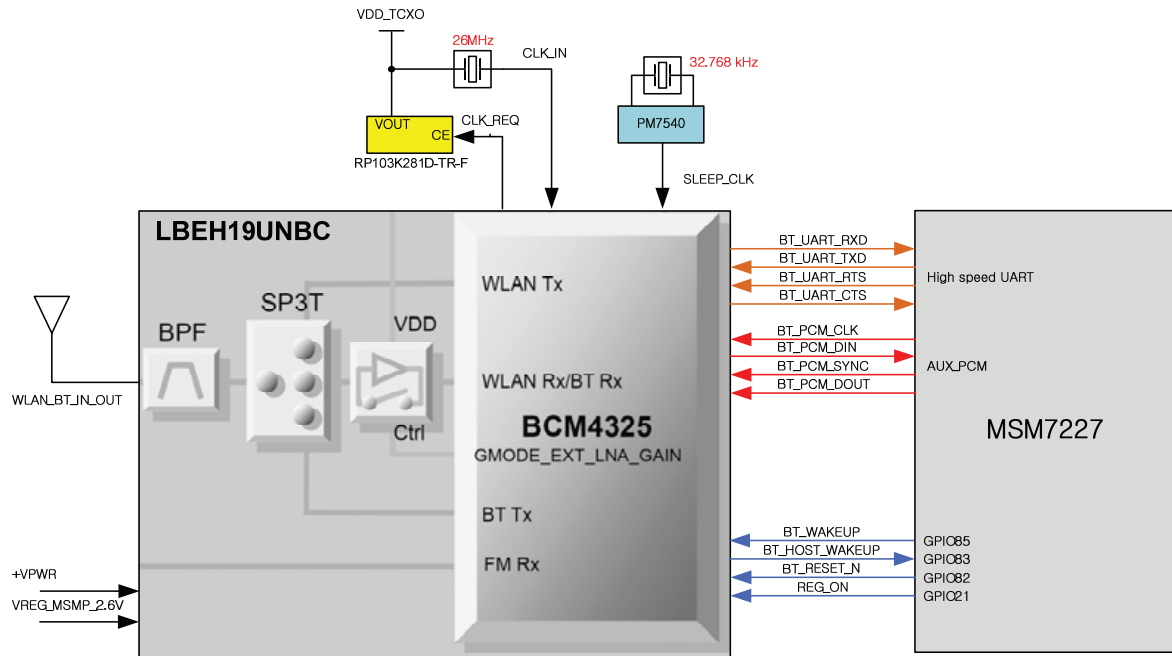
POWER Block



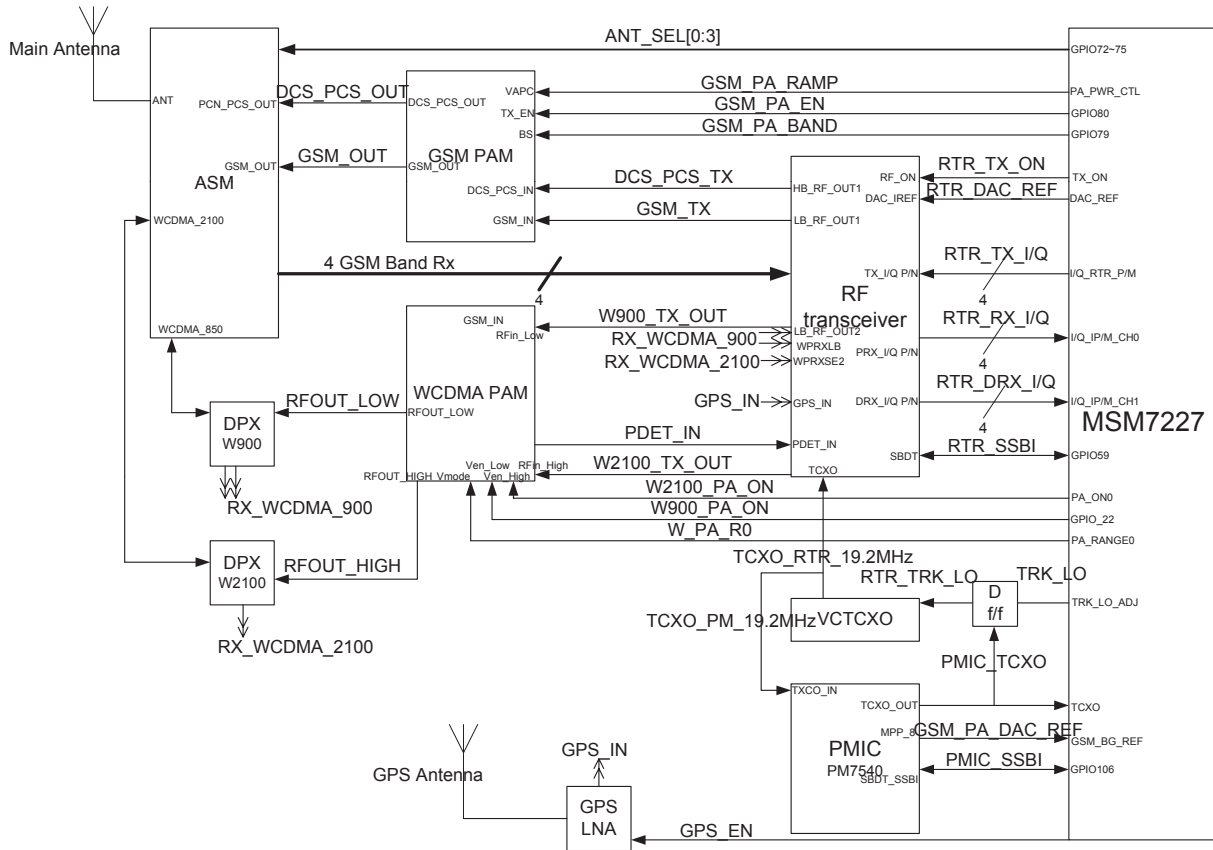
6. BLOCK DIAGRAM



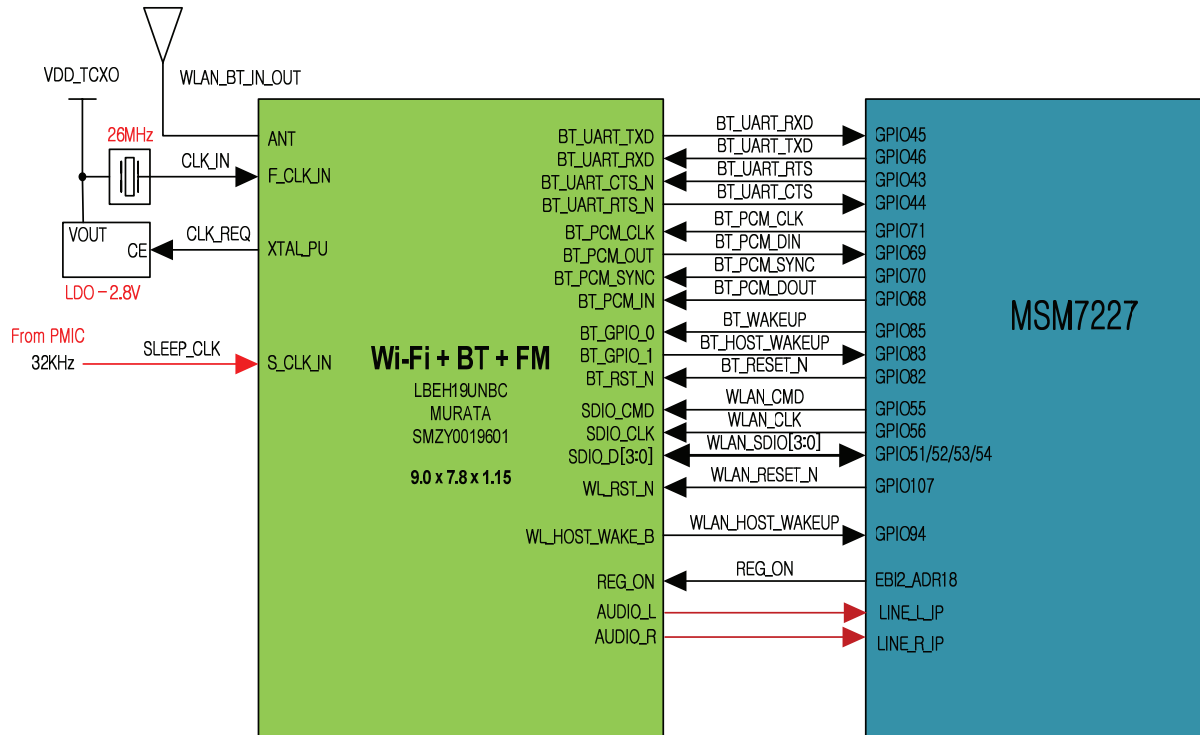
6. BLOCK DIAGRAM



6. BLOCK DIAGRAM

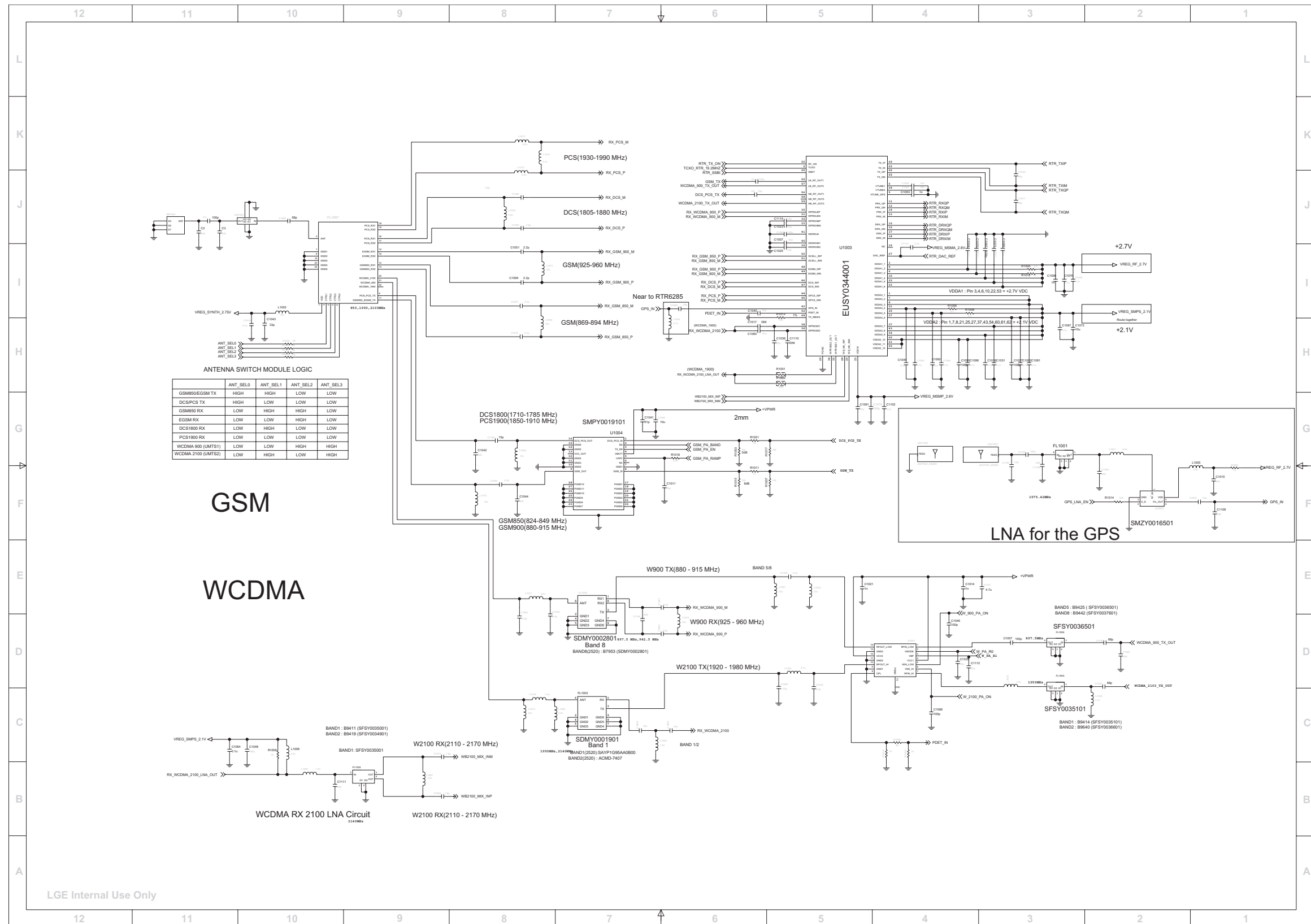


6. BLOCK DIAGRAM

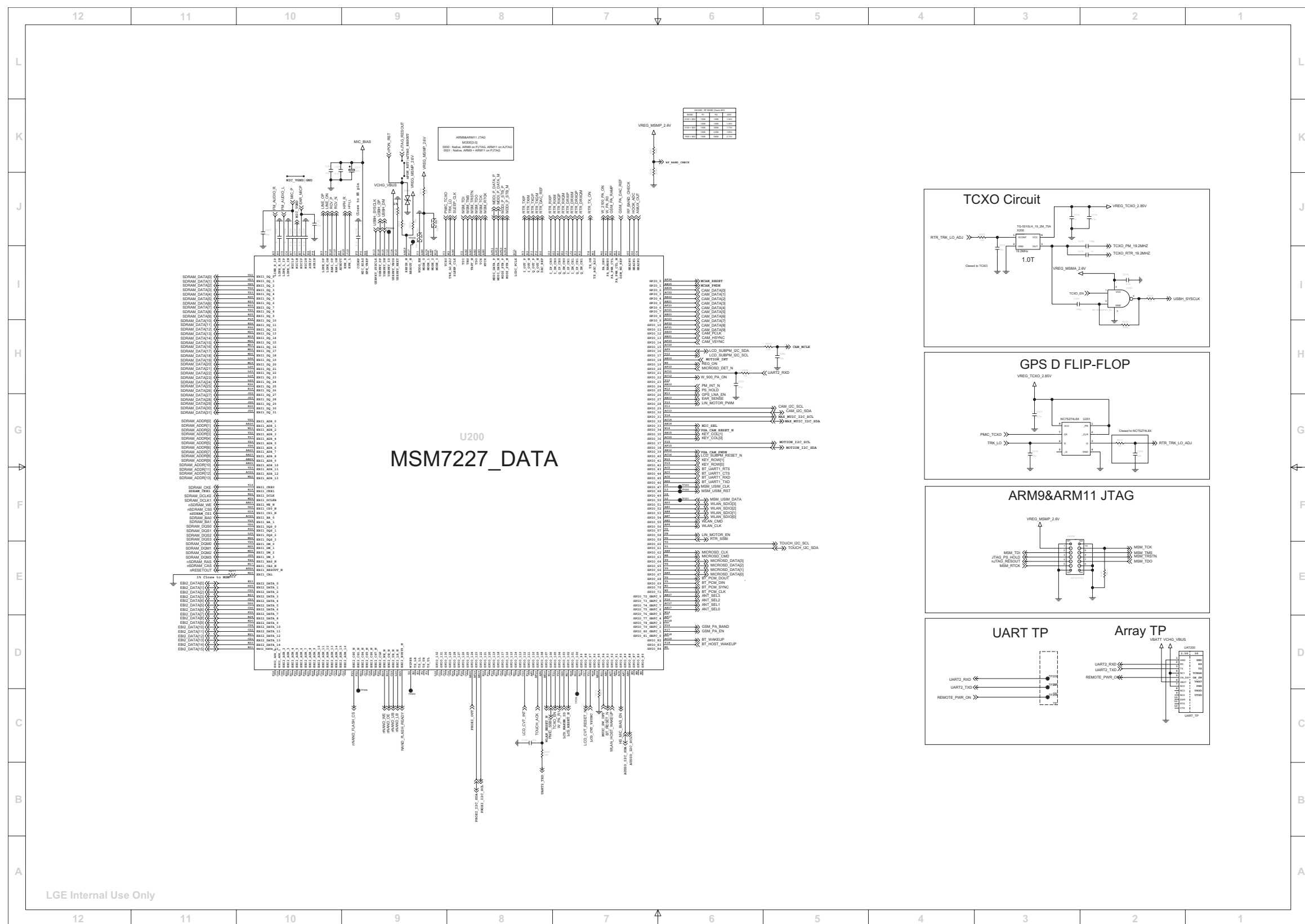




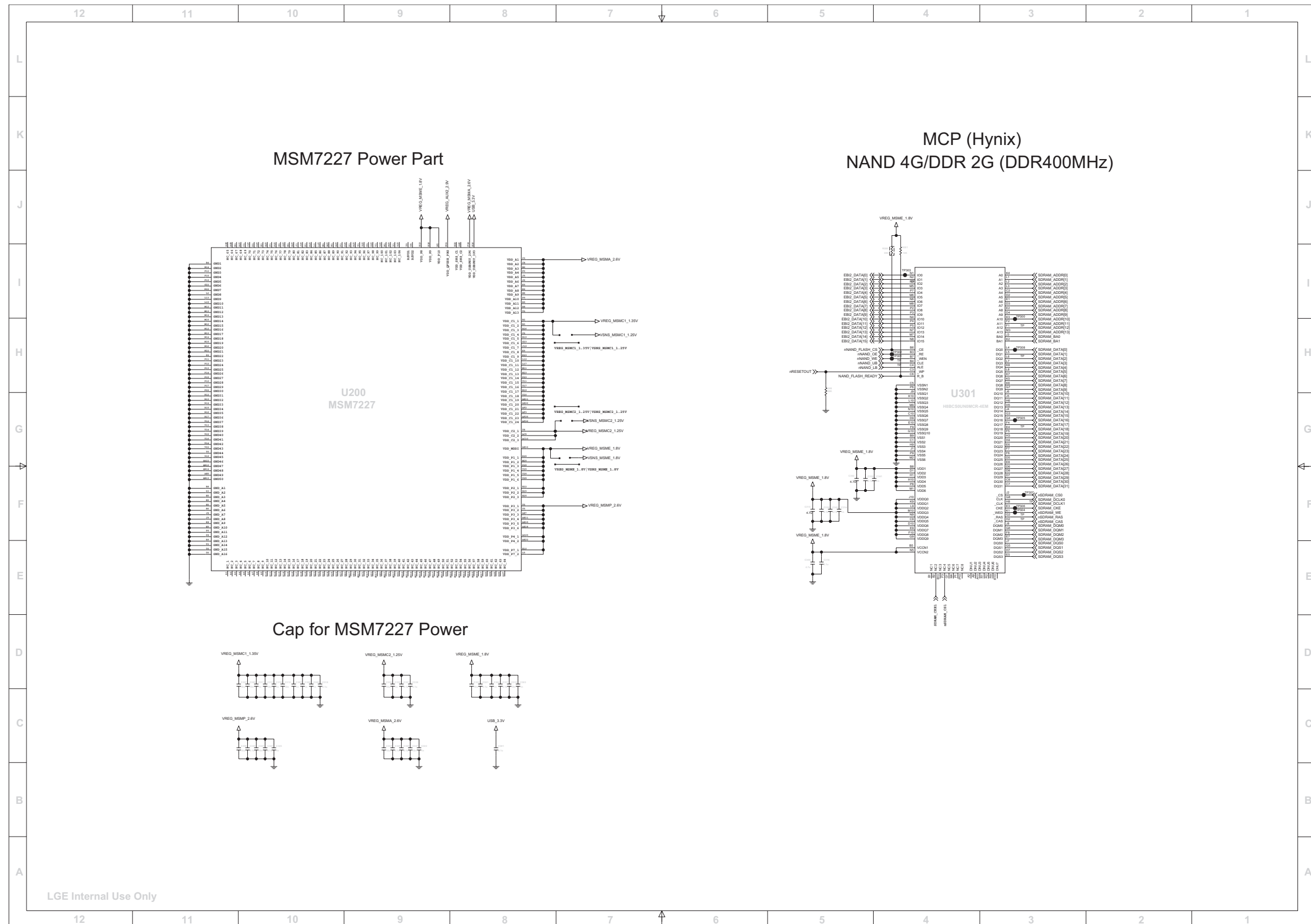
7. CIRCUIT DIAGRAM



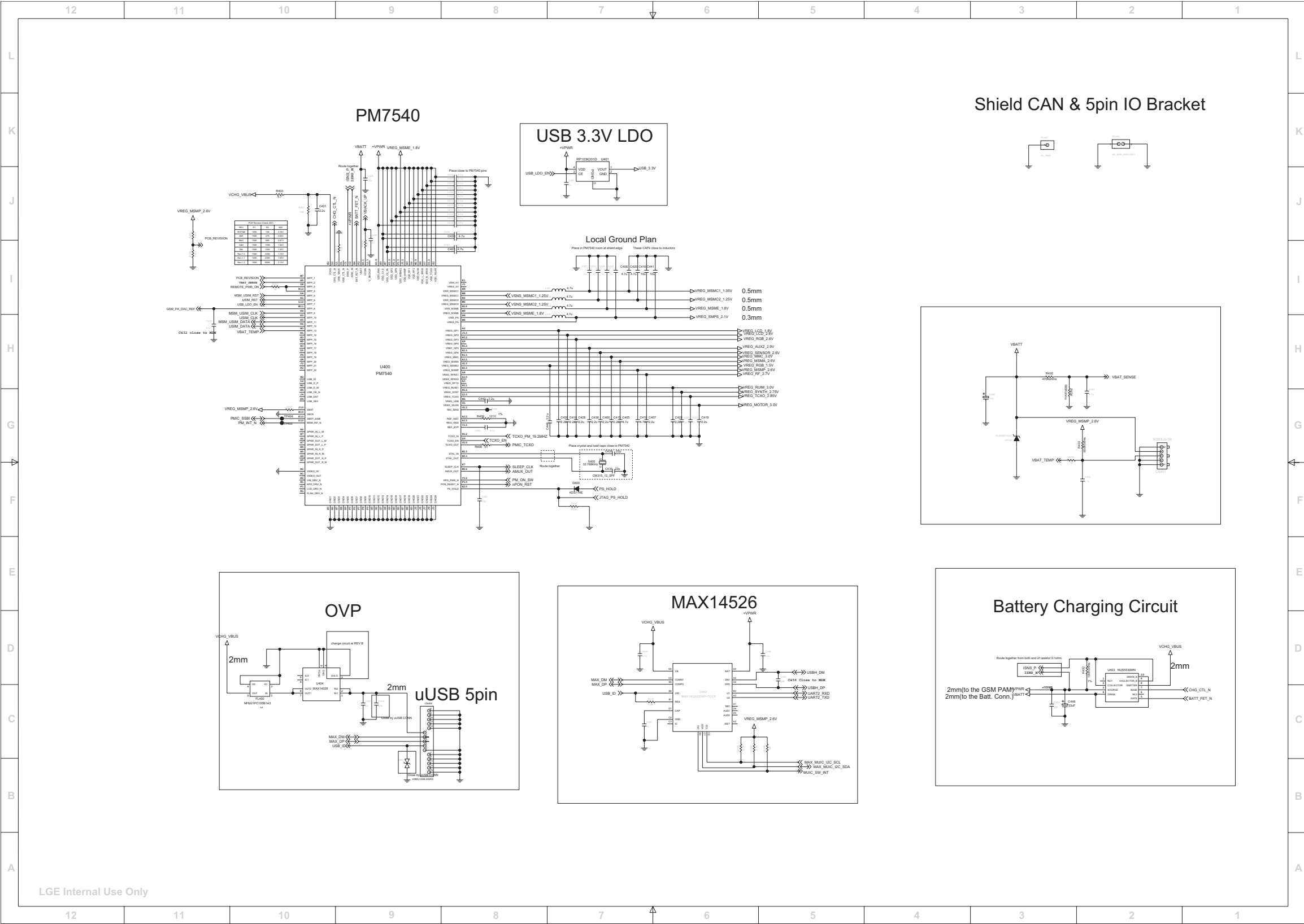
7. CIRCUIT DIAGRAM



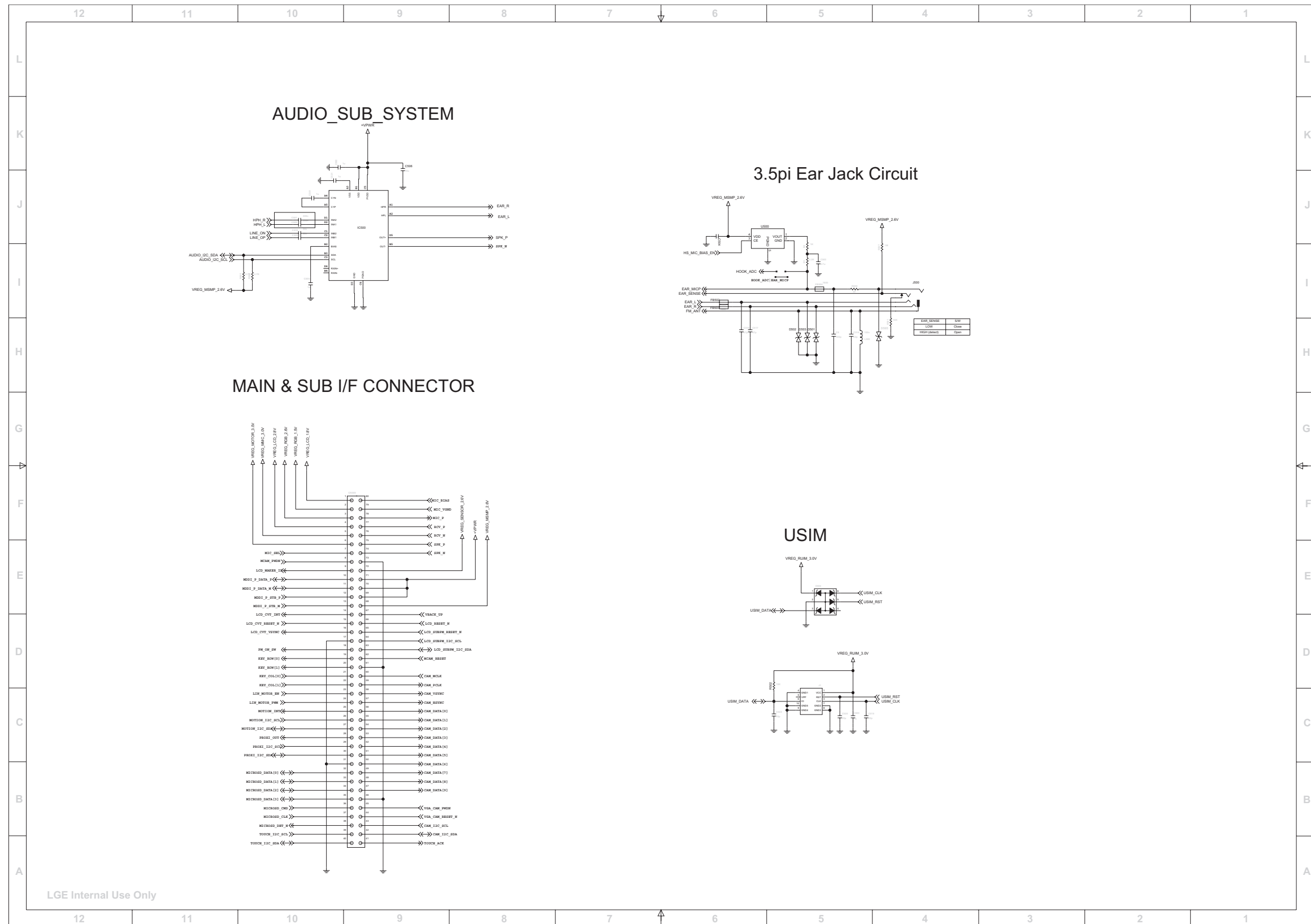
7. CIRCUIT DIAGRAM



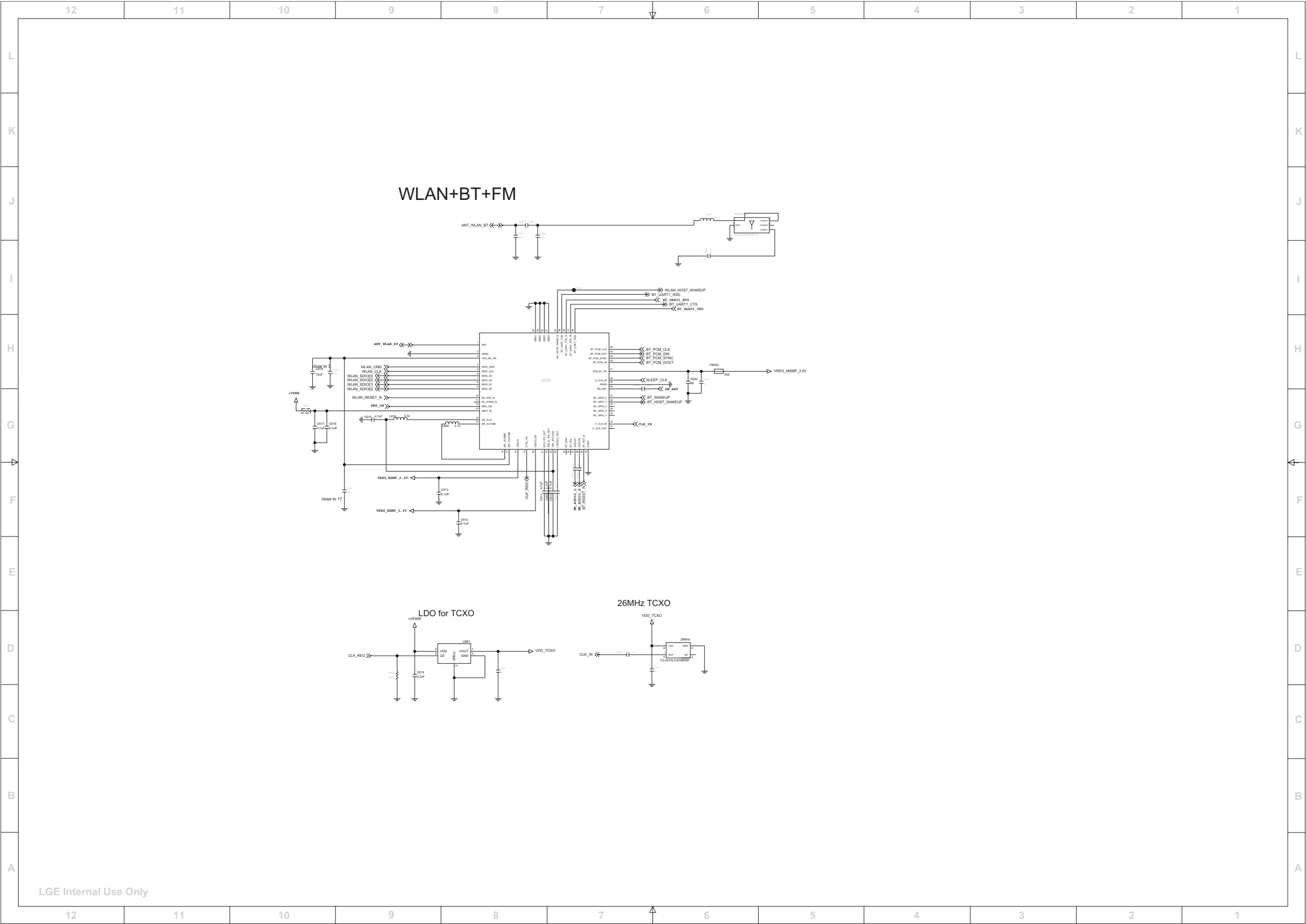
7. CIRCUIT DIAGRAM



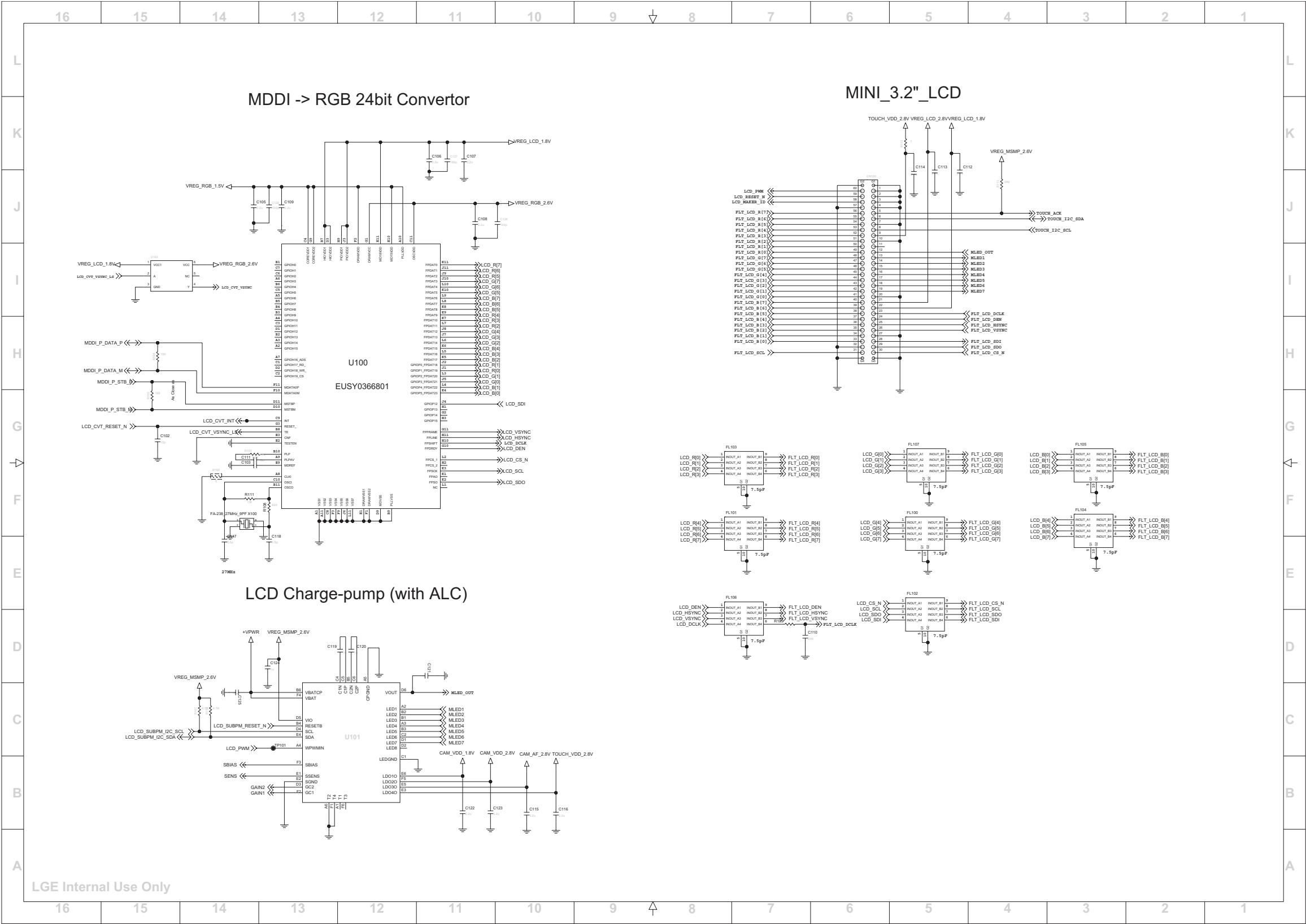
7. CIRCUIT DIAGRAM



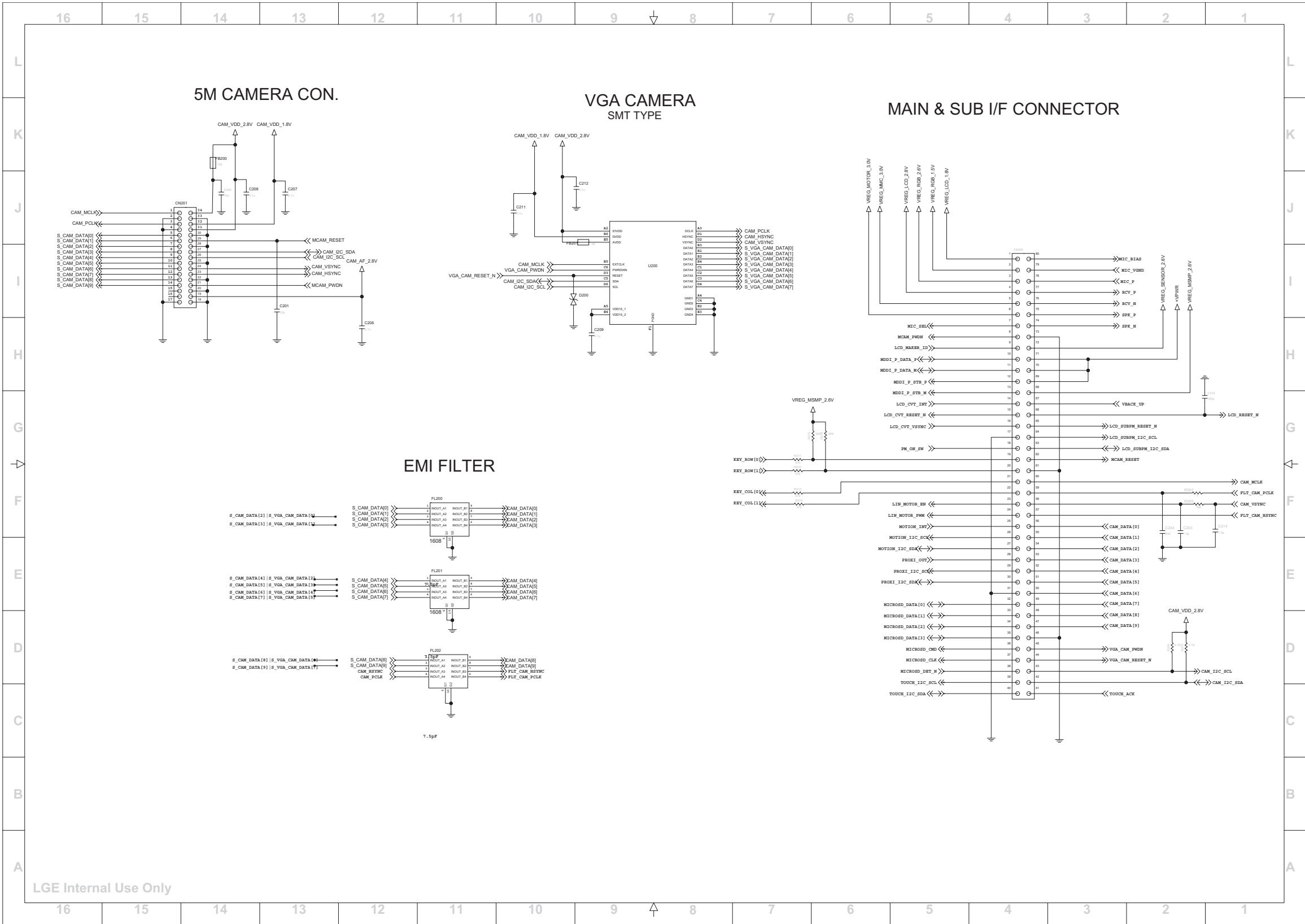
7. CIRCUIT DIAGRAM



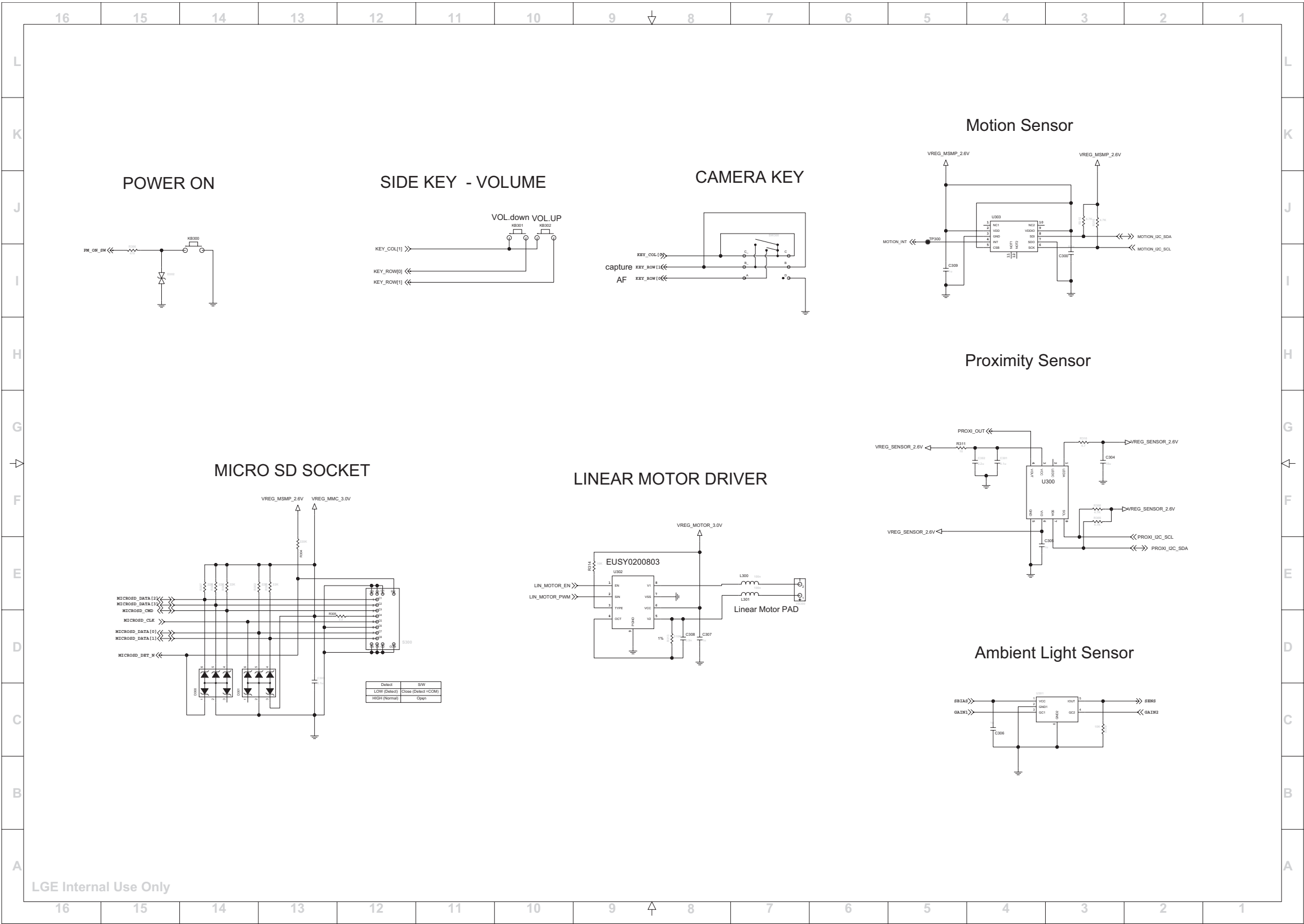
7. CIRCUIT DIAGRAM



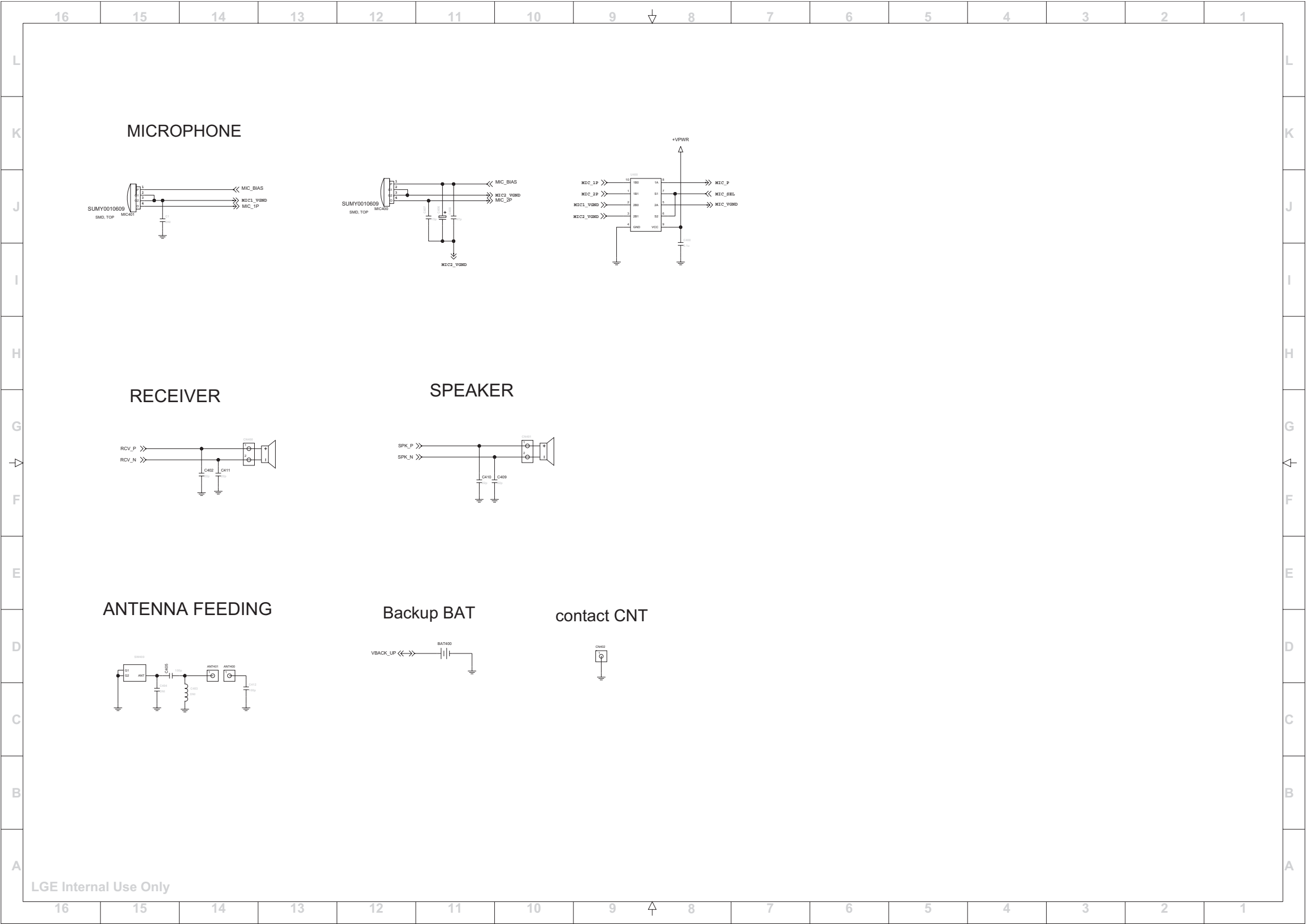
7. CIRCUIT DIAGRAM



7. CIRCUIT DIAGRAM



7. CIRCUIT DIAGRAM



8. BGA PIN MAP

U200 (560 NSP)

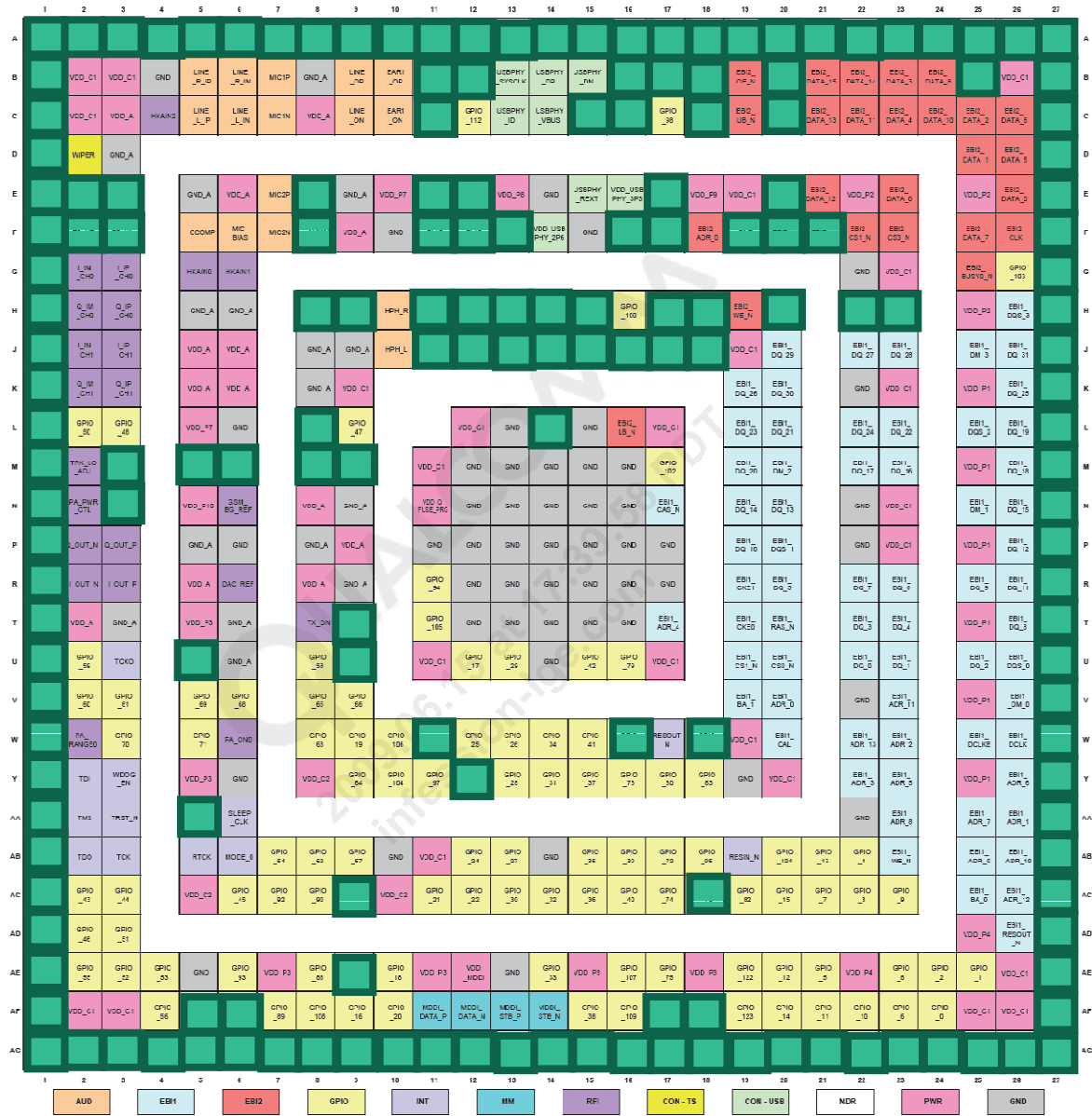
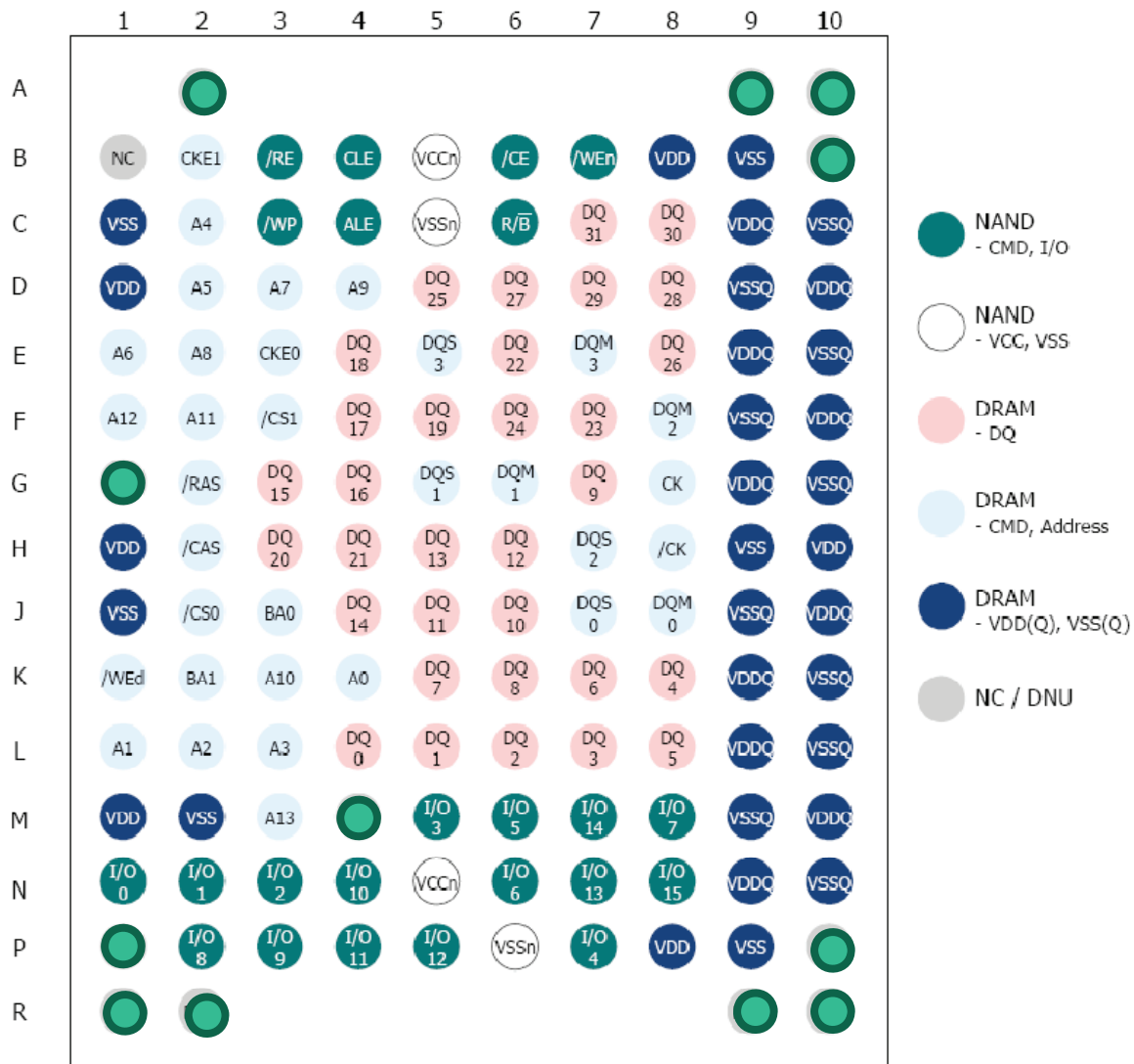


Figure 2-1 MSM7227 IC pin assignments (top view)

NC

8. BGA PIN MAP

U301 (137 FBGA)



137 Ball FBGA Package (Top View)



U400 (137 CSP)

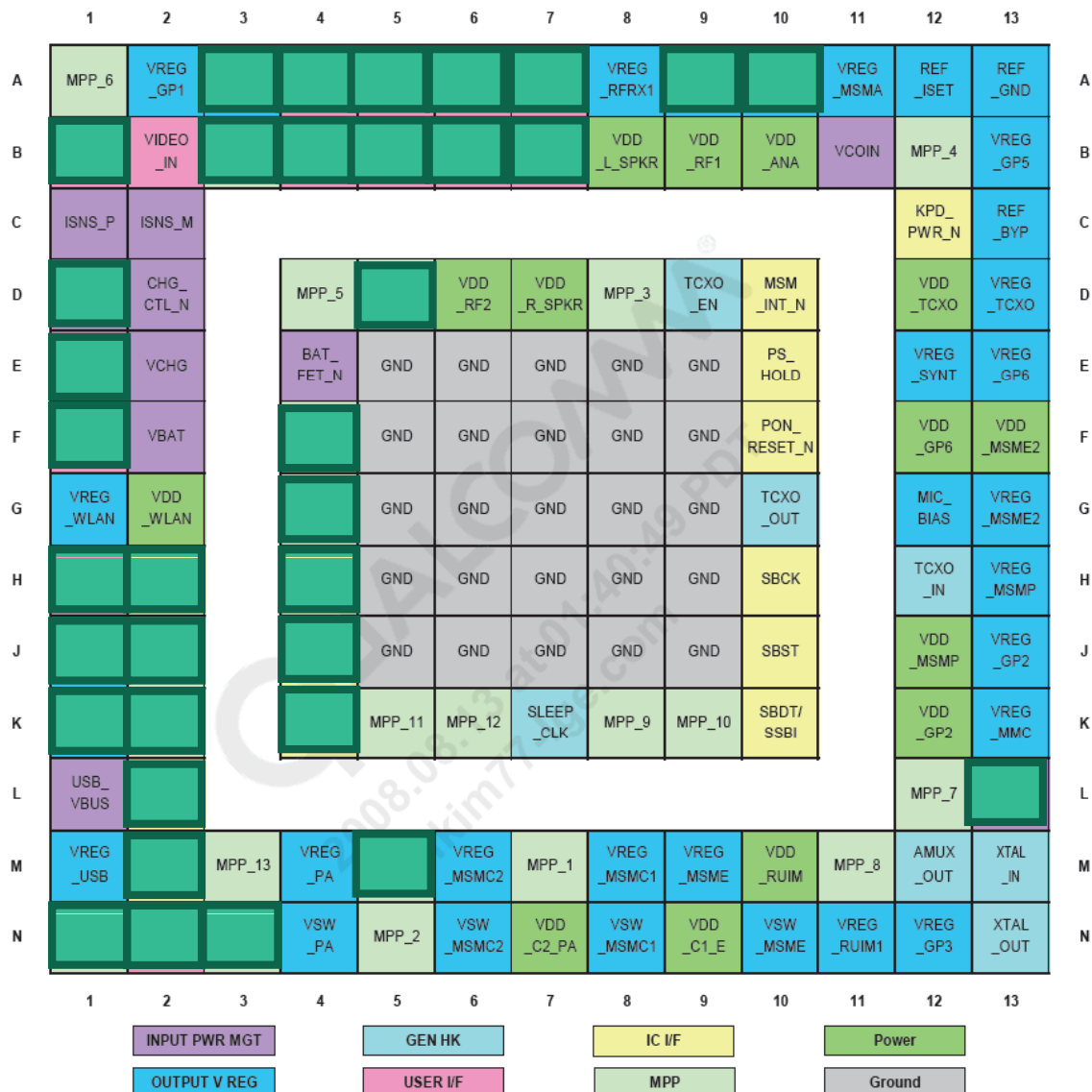
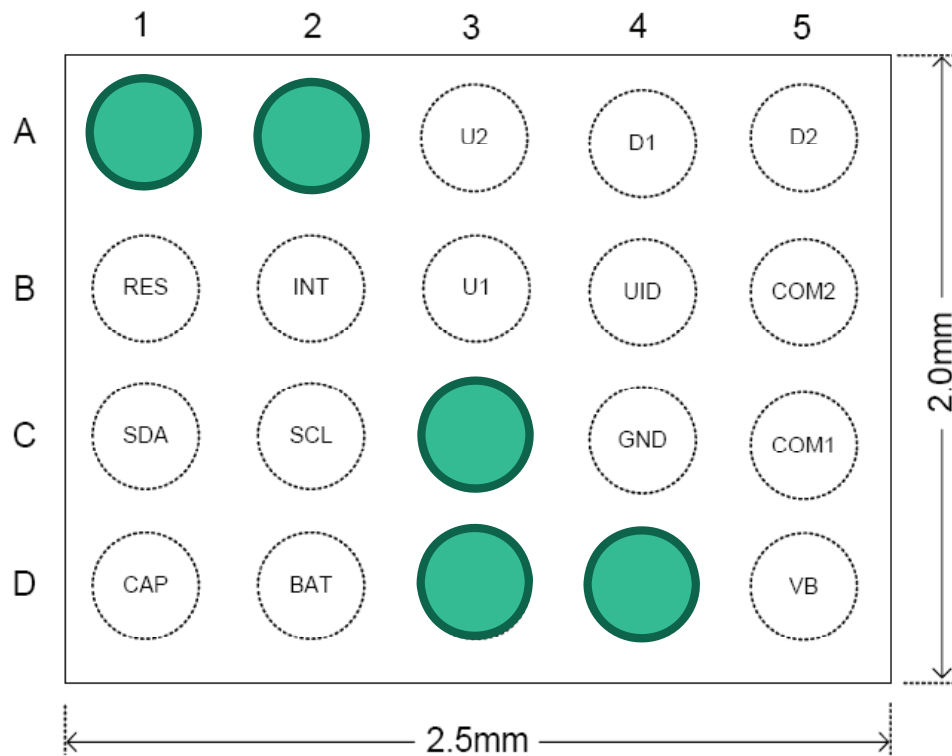


Figure 2-1 PM7540 IC pin assignments (top view)

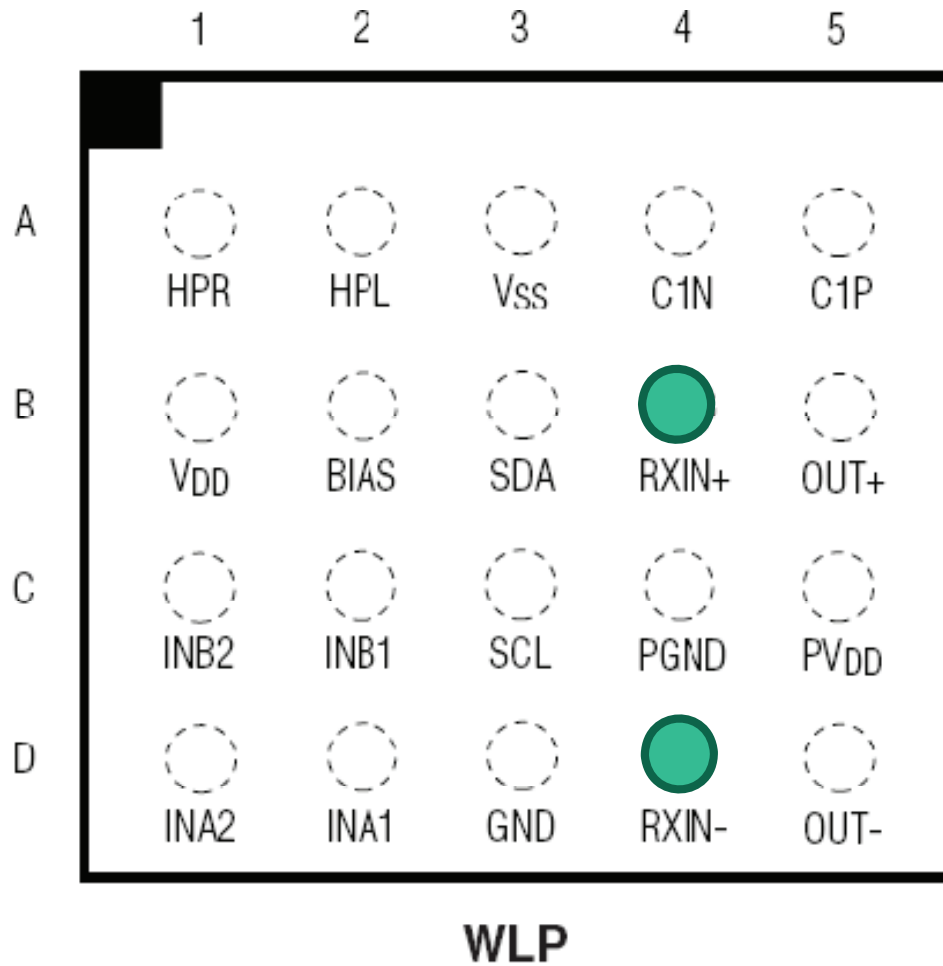
NC

8. BGA PIN MAP

U402 (20WLP)

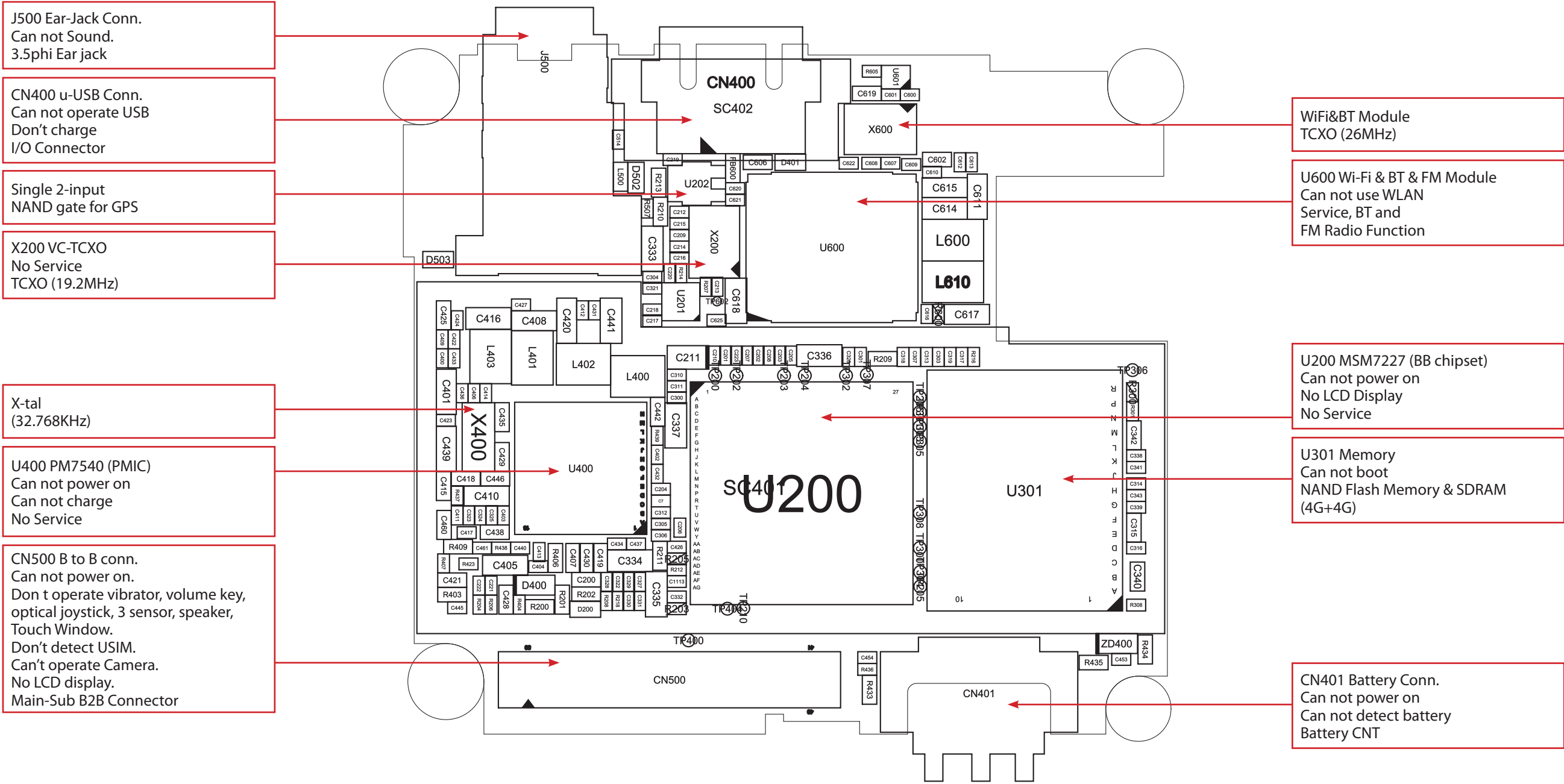


IC500 (20 CSP)



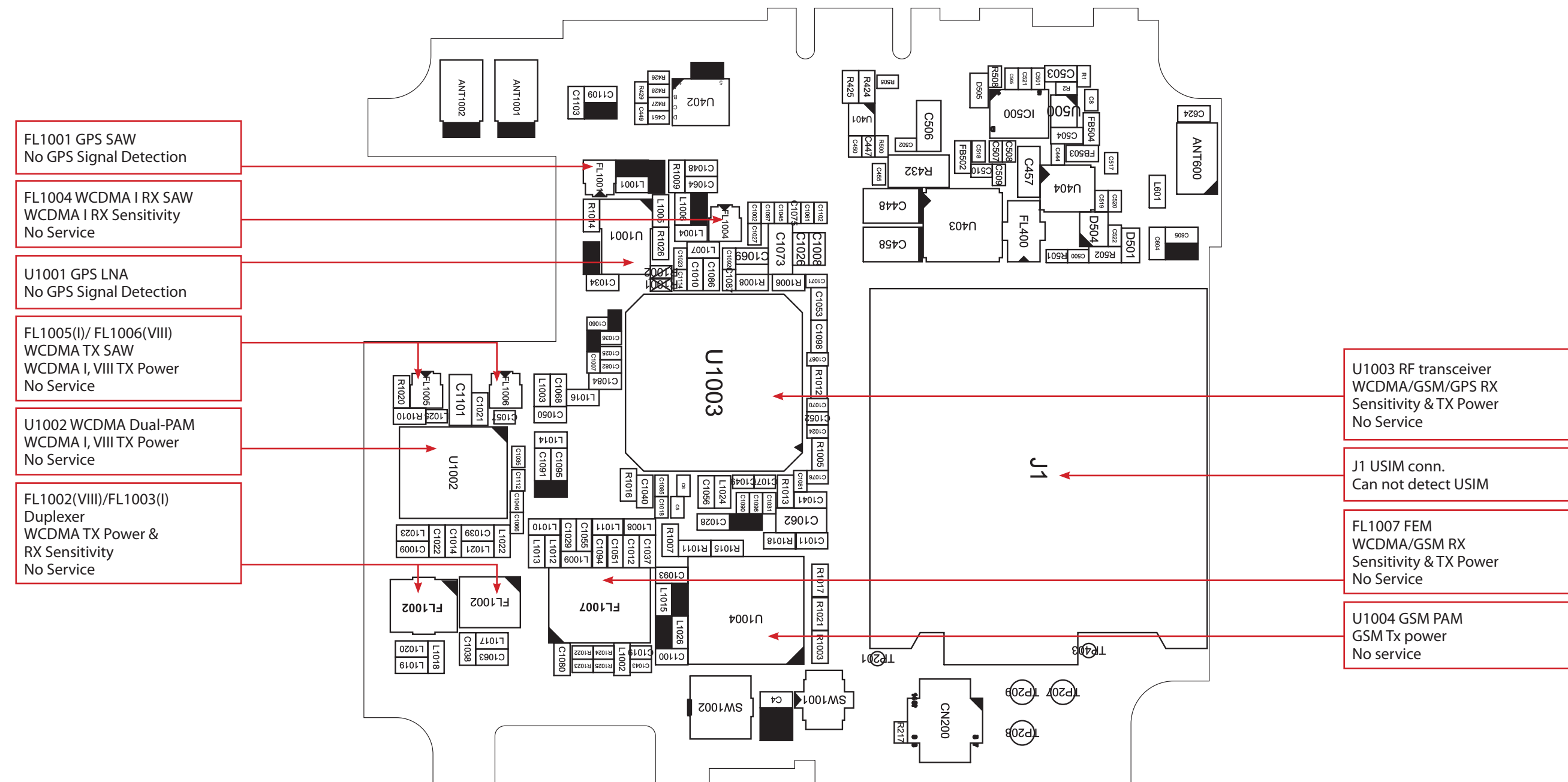


9. PCB LAYOUT



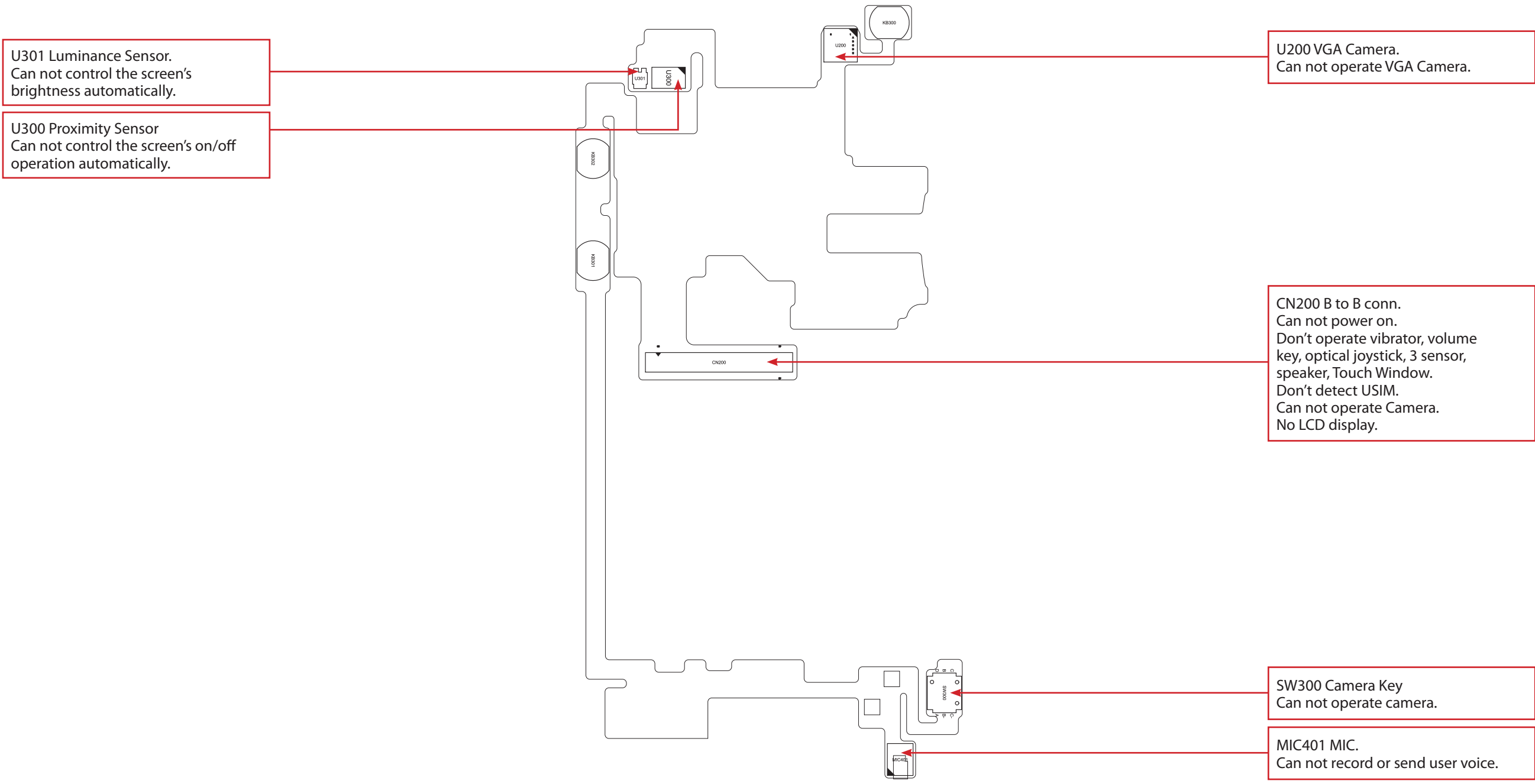
GD880-MAIN-TOP

9. PCB LAYOUT



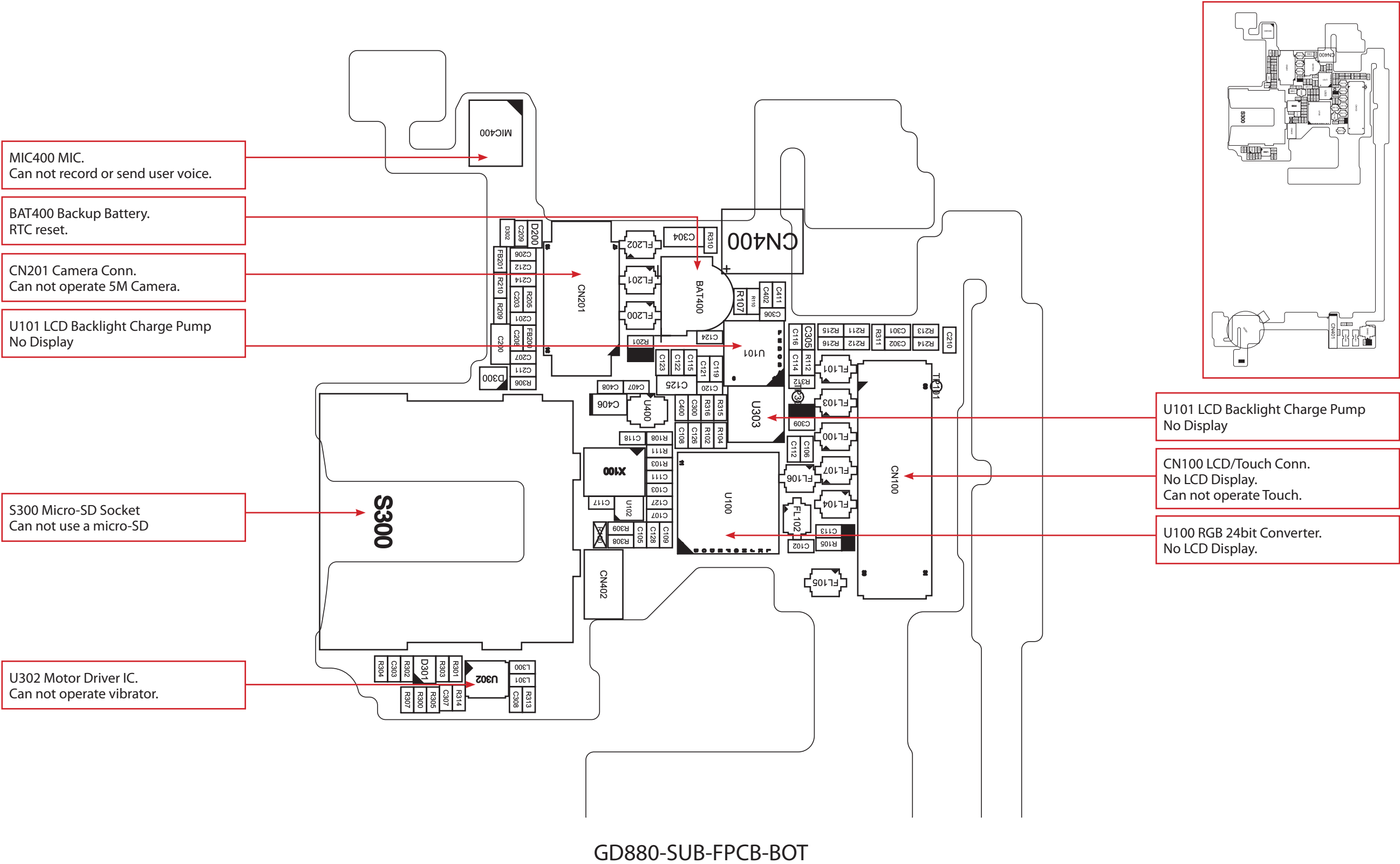
GD880-MAIN-BOTTOM

9. PCB LAYOUT

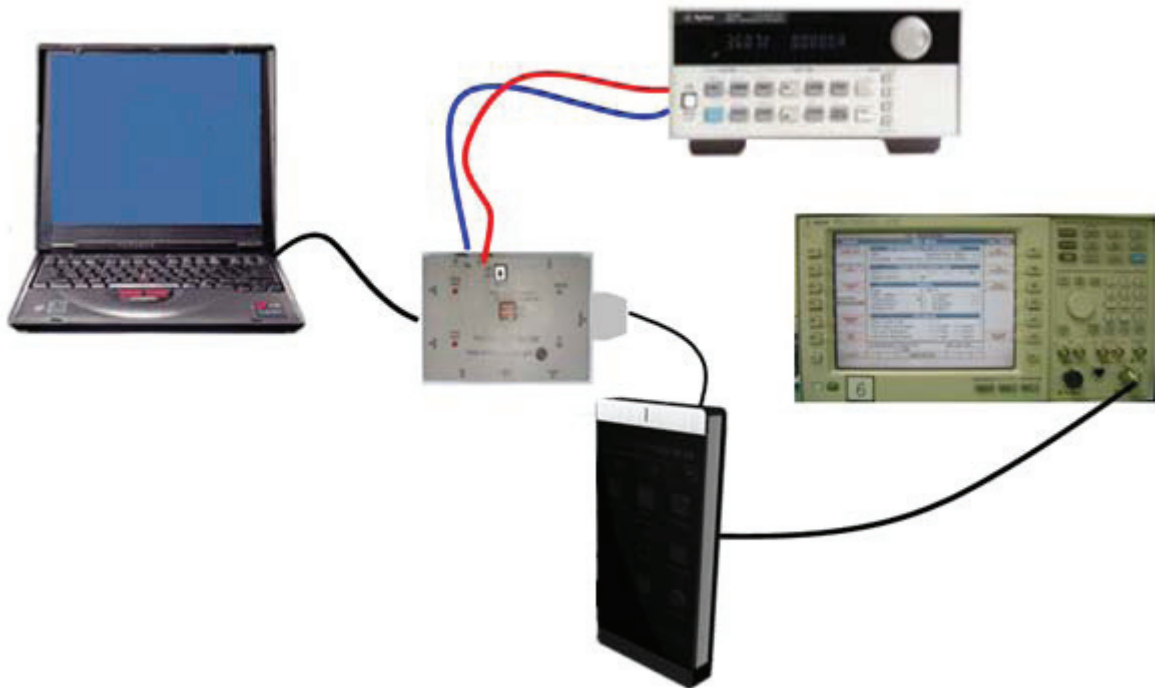


GD880-SUB-FPCB-TOP

9. PCB LAYOUT



10. RF CALIBRATION



GD880 Target Power

W900 : 23dBm

W2100 : 22.5dBm

GSM850/900 : 32.5dBm

GSM1800 : 29.5dBm

GSM1900 : 29dBm

10. RF CALIBRATION

10.1 Introduction

Tachyon will explain how to use the program for the user.

Used in this article Tachyon except for a detailed description of the environment file, and only the description is only required.

10.2 Terminology

Tachyon : CMTest2, HotKimchi integrated program.

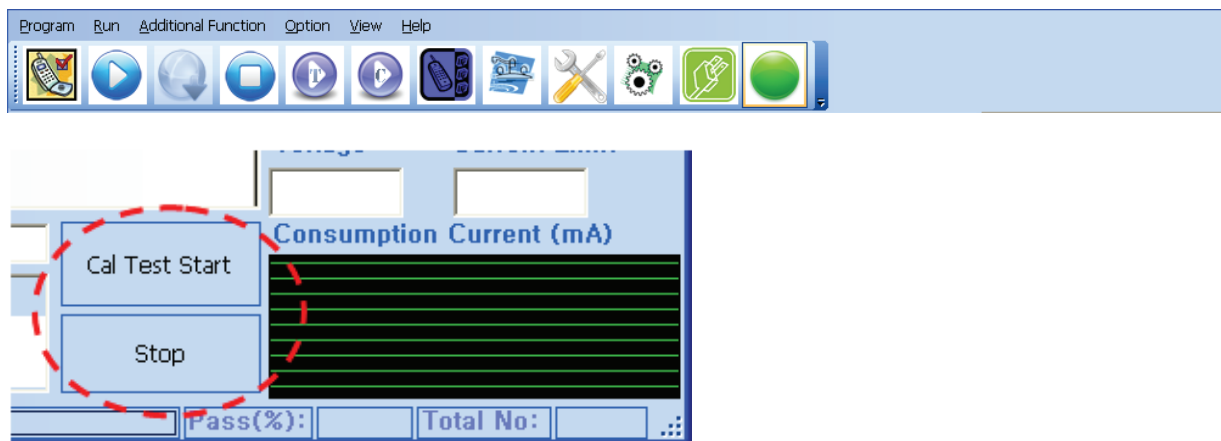
- Dictionary meaning : Quick bitboda of virtual particles.
- Mean : Want to reduce the time means fast bitboda moment.

10.3 Tachyon Main UI

It will be explained in the Main Screen.

10.3.1 Menu / Toolbar / Run Button

Tachyon has "Menu", "Toolbar" and Buttons.



<Picture 6>

10.3.1.1 Menu

There are six kinds of menu.

("Program", "Run", "Additional Function", "Option", "View", "Help")

Program

Menu	Description
Model Selection	Select model
Config Editor...	Develop progress
NV Item Manager...	Develop progress
Sequence Editor...	Develop progress
Exit	Exit program

Run

Menu	Description
Calibration + Test	Start Calibration and Auto Test
Calibration Only	Start Calibration
Test Only	Start Auto Test
Select band Calibration	Start Calibration with selected Band
Select Band/Item Calibration	Start Calibration with selected band and item.
Select Band Auto Test	Start Auto Test with selected Band
NV Read	Read the NV items.
NV Write	Write the NV items.
Stop	STOP

Additional Function

Menu	설명
Loss Adjustment...	Configuration and adjust RF-LOSS.
Instrument Calibration...	Instrument calibration(available on E5515C)
Phone Control...	Phone control (like QPST, available on Qaulcomm)
RF Switch Check...	Check the RF Switch Box.
Show Result...	Result screen pop-up/pop-down

10. RF CALIBRATION

Option

Menu	Description
System Option...	COM-Port configuration
Run Option...	Special opstion.
Instrument Change...	Change instrument
Voltage / Current Setting...	Voltage,Current setting

View

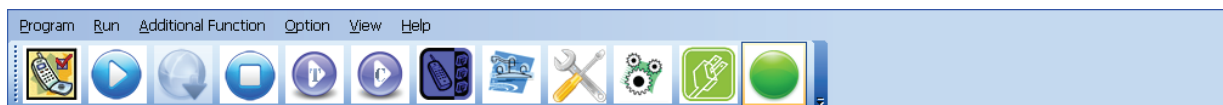
Menu	Description
Toolbar, Menubar Toggle.	

Help

Menu	Description
Tachyon Help	Develope progress
Tachyon Hotkey...	
About Tachyon...	

10.3.1.2 Toolbar

Toolbar Provides for frequently used commands.

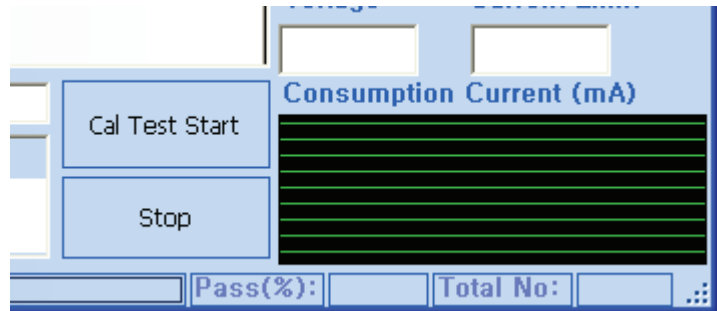


<Picture 7 : Toolbar>

<Picture 7> Commands in order are as follows :

1. Model Selection
2. Calibration + Test
3. Not available.
4. Stop
5. Test Only
6. Calibration Only
7. Phone Control
8. Loss Adjustment
9. System Option
10. Run Option
11. Voltage / Current Setting
12. Show Result

10.3.1.3 Command Button



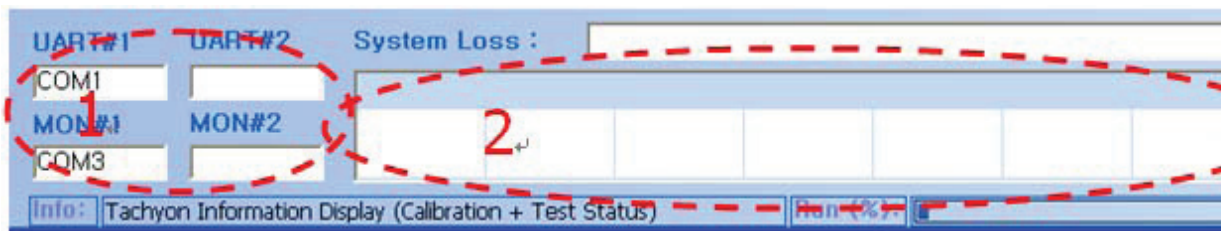
<Picture 8 : Start Button>

"Calibration + Test" Button , "Stop" Button .

10.3.2 UI Display Information

About the item on the screen output will be explained.

10.3.2.1 Port / Loss info



<Picture 9 : COM Port / Loss Information>

Area 1, the output is information about the COM port.

Area 2, Show the RF-LOSS for the selected model.

10. RF CALIBRATION

MODEL INFORMATION	
Solution	
Model	
Buyer	
Binary Ver	
Product ID	
SYSTEM INFORMATION	
Local	INside
Ezlooks Mode	OFF
Limo	ON
RF Switch	
RUN INFORMATION	
Repeat Test	NO
ESN Write	NO
Test Only	NO
Rework	NO
Verification	NO
Report Data	
BASE INST. INFORMATION	
Base Inst.	

Execution Mode

Time Elapse

00:00:00
00:00:00

Voltage **Current Limit**

Consumption Current (mA)

Model Information : Information of model that user selected

Solution : chipset (Qualcomm, Emp, ADI, Infineon)

Model : Model name, Buyer : Buyer name

Binary Ver : Binary Version.(Phone s/w version)

Product ID : PID (read from phone).

System Information : ezlooks, shield box, rf switch box.

Local : Factory location, Ezlooks Mode : On-line/Off-line

Limo : Using Shield box or not

Run Information : Option

Repeat Test : Aging test, ESN Write : Write the ESN(IMEI).

Test Only : Only auto test

Rework : Rework Option.

Verification : Using verification or not.

Base Inst. Information : information of instrument

Base Inst. : Equipment type

Execution Mode : Display the Command that user input

Time Elapse : test time

Voltage : voltage

Current Limit : current limit

Consumption Current(mA) : doesn't work


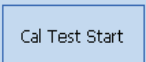
10.4.2 Run / Stop

This will be explained in detail about the functionality provided.

10.4.2.1 Calibration + Test

This perform the calibraton, Test.

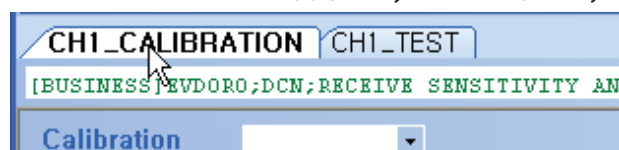
Select when 'Calibration and Auto Test' process

	Description.
Excution	1. <Menu> Run-> Calibration + Test. 2. <Toolbar>  Click .
Hot Key	F5 : Shield Box 1 F6 : Shield Box 2
Button	 button Click.

<Calibration + Test> will be in the order. Sequence xml file has it.

- i) Precede Action
 - NV Write.
 - Test command send
- ii) Calibration
 - Calibration
- iii) Auto Test
 - Auto test
- iV) After Action
 - Phone reset
 - Change AMSS

If you have a multi-system, you must select the Channel(1,2) that you wanted, then you can test.




<Picture 15 : Channel selection>

10. RF CALIBRATION

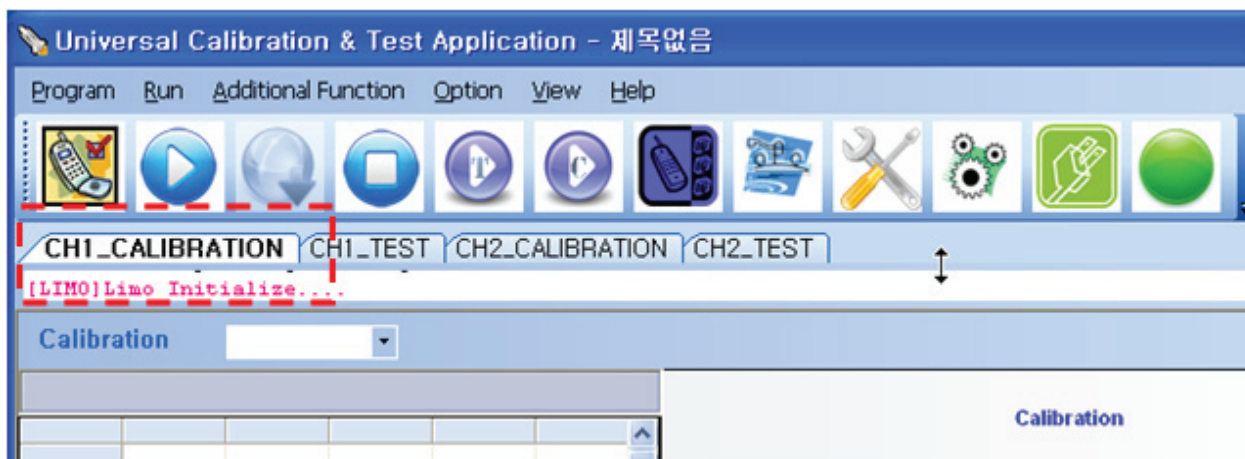
10.4.2.2 Calibration Only

This perform only the Calibraton.

Select when 'Calibration only' process.

	Description.
Excution	1. <Menu> Run-> Calibration Only. 2. <Toolbar>  Click.
Hot Key	F9
Button	NONE.

If you have a multi-system, you must select the Channel(1,2) that you wanted, then you can test.




<Picture 16 : Calibration Only>

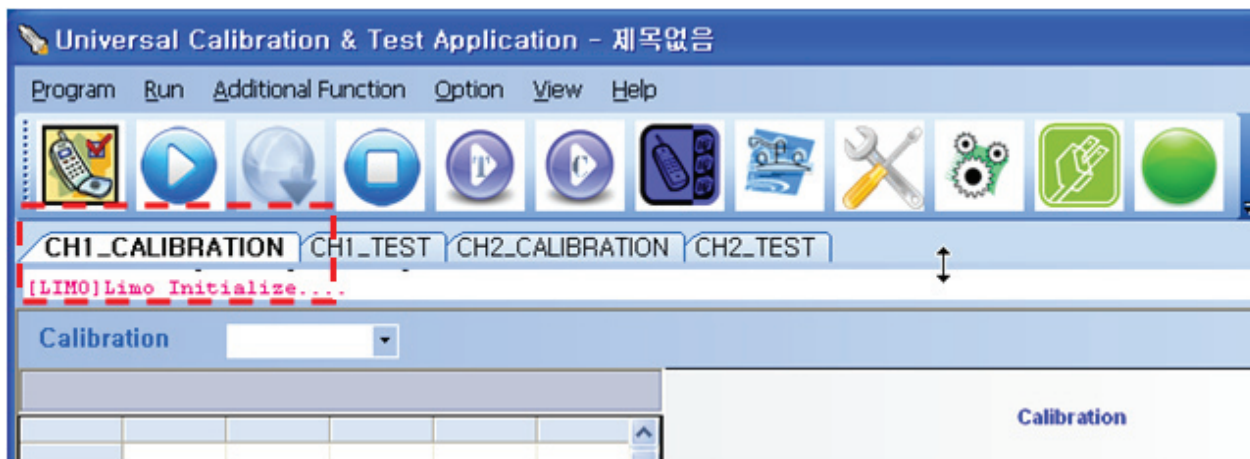
10.4.2.3 Test Only

This perform only the Test.

Select when "Test Only" process

	Description.
Excution	1. <Menu> Run-> Test Only. 2. <Toolbar>  Click.
Hot Key	F8
Button	NONE.

If you have a multi-system, you must select the Channel(1,2) that you wanted, then you can test.





<Picture 17 : Test Only>

10. RF CALIBRATION

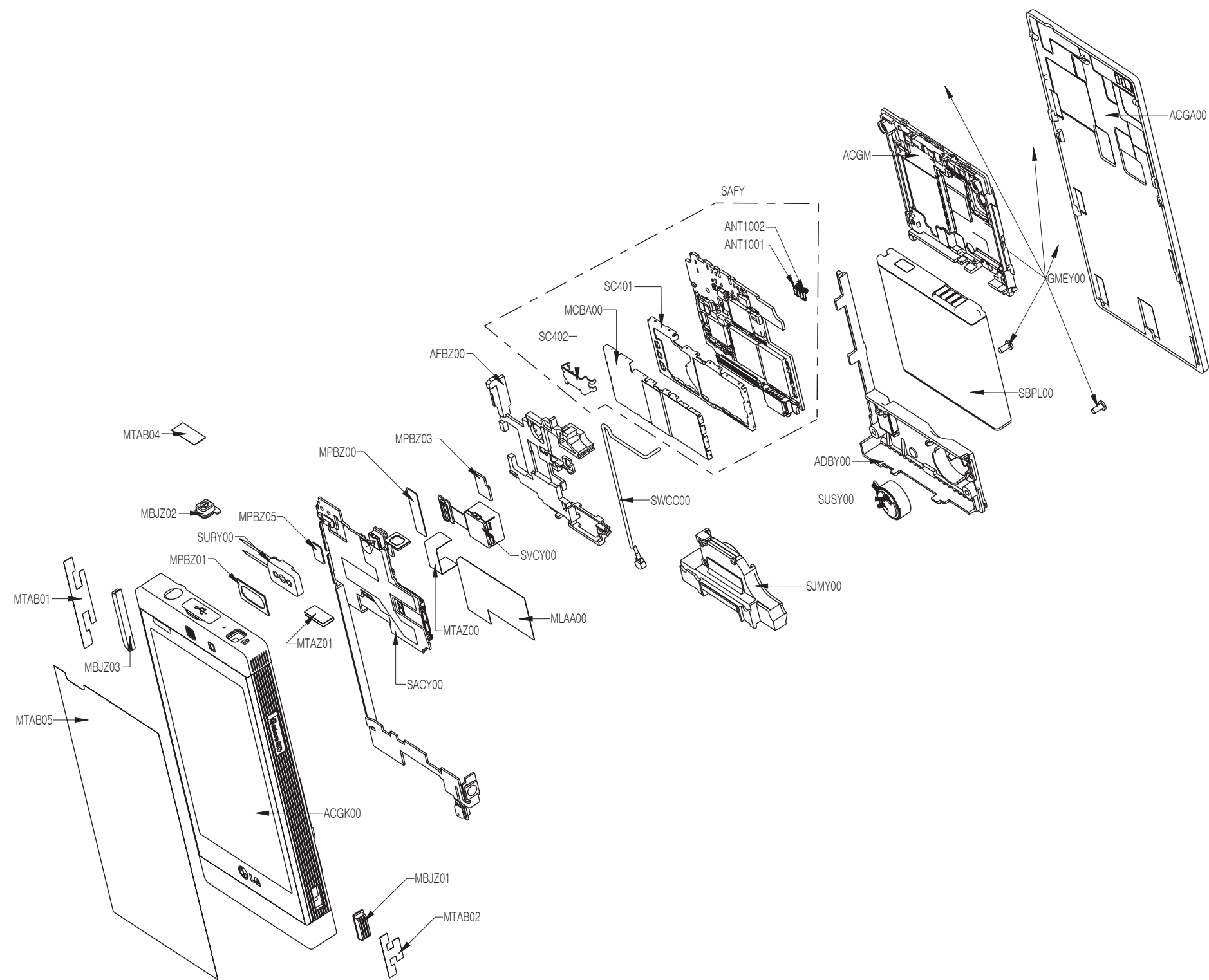
10.4.2.4 Stop

This perform Stopping the process.

	Description.
Excution	1. <Menu> Run-> STOP 2. <Toolbar>  Click.
Hot Key	ESC
Button	 button Click.

11. EXPLODED VIEW & REPLACEMENT PART LIST

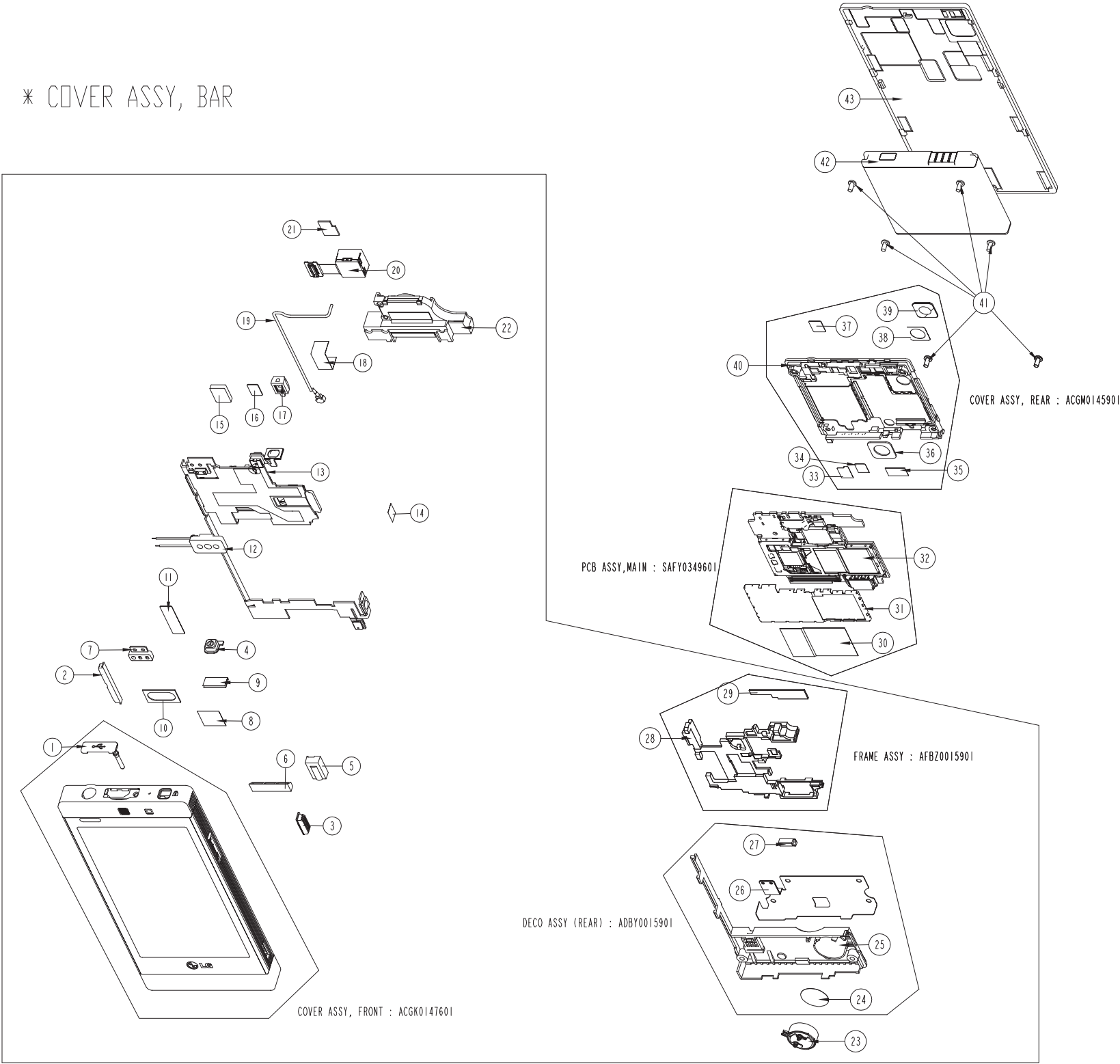
11.1 EXPLODED VIEW



ACGA00	COVER ASSY,BATTERY
SBPL00	BATTERY PACK,L1-10N
GMEY00	Screw,Machine
ACGM00	COVER ASSY,REAR
SUSY00	SPEAKER
SJMY00	VIBRATOR,MOTOR
ADBY00	DECO ASSY
SC402	BRACKET
SC401	CAN,SHIELD
MCBA00	CAN,SHIELD
ANT1001	CONTACT
ANT1002	CONTACT
SAFY00	PCB ASSY,OPTION
AFBZ00	FRAME ASSY
MLAA00	LABEL,APPROVAL
MTAZ01	TAPE
MTAZ00	TAPE
SWCC00	CABLE,COAXIAL
SVCY00	CAMERA
SURY00	RECEIVER
MPBZ03	PAD
MPBZ05	PAD
MPBZ01	PAD
MPBZ00	PAD
SACY00	PCB ASSY,FLEXIBLE
MTAB01	TAPE,PROTECTION
MBJZ03	BUTTON
MTAB04	TAPE,PROTECTION
MBJZ02	BUTTON
MTAB02	TAPE,PROTECTION
MBJZ01	BUTTON
ACGK00	COVER ASSY,FRONT
MTAB05	TAPE,PROTECTION
Location No	Part description

11. EXPLODED VIEW & REPLACEMENT PART LIST

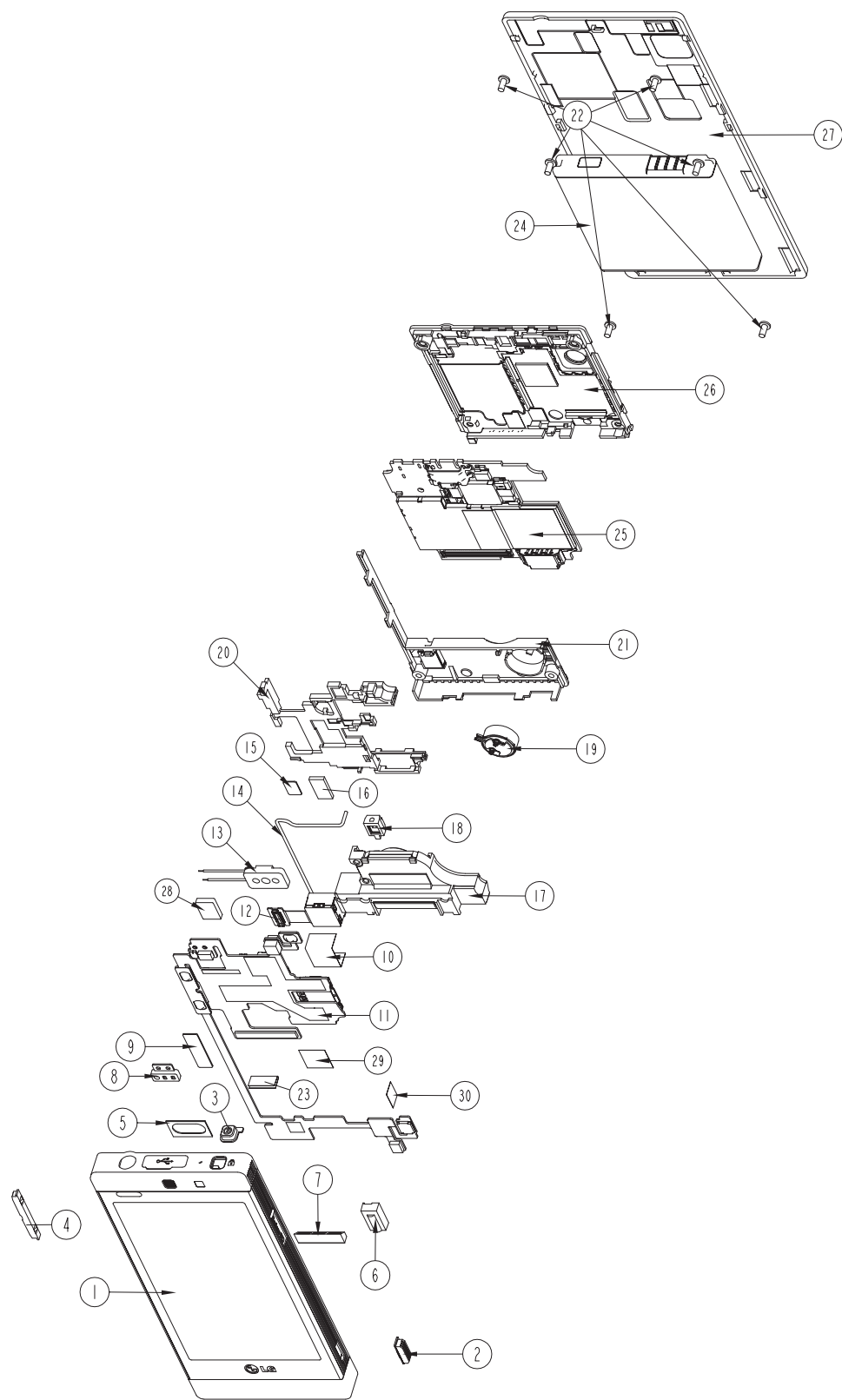
* COVER ASSY, BAR



43	COVER ASSY BATTERY	ACGA0033802	1
42	BATTERY PACK,LI-ION	SBPL0100001	1
41	SCREW MACHINE,BIND	GMEY0011201	6
40	COVER, REAR	MCJN0112101	1
39	WINDOW,CAMERA (5M)	MWAE0054201	1
38	TAPE,WINDOW (5M CAMERA)	MTAD0116901	1
37	SHEET(ANTENNA)	MSAZ0063001	1
36	PAD,CAMERA (5M)	MPBT0085601	1
35	Insulator(Charger)	MIDZ0242701	1
34	TAPE(Gasket)	MTAZ0314001	1
33	Insulator	MIDZ0249001	1
32	PCB ASSY,MAIN,SMT	SAFF0260601	1
31	CAN,SHIELD (COVER)	MCBA0062301	1
30	TAPE(Shield)	MTAZ0309901	1
29	PAD (MAIN CONN)	MPBZ0248201	1
28	FRAME	MFEZ0023001	1
27	CAP (ANTENNA _FPCB)	MCCZ0033901	1
26	INTENNA	SNGF0056902	1
25	DECO (REAR)	MDAY0045601	1
24	TAPE (MOTOR)	MTAZ0256901	1
23	MOTOR	SJMY0008510	1
22	SPEAKER	SUSY0027615	1
21	PAD (CAMERA CONN)	MPBZ0268901	1
20	CAMERA MODULE	SVCY0025001	1
19	RF CABLE	SWCC0009301	1
18	TAPE(5M CAMERA)	MTAZ0285501	1
17	CAP (MIC TOP)	MCCZ0034001	1
16	PAD (RECEIVER_BACK)	MPBZ0272001	1
15	PAD (SENSOR)	MPBZ0248401	1
14	Insulator(Power key)	MIDZ0265001	1
13	PCB ASSY,FLEXIBLE	SACY0103201	1
12	RECEIVER	SURY0010109	1
11	PAD (LCD CONN)	MPBZ0248501	1
10	PAD (RECEIVER_FRONT)	MPBZ0248301	1
9	TAPE(5M CAMERA + FRAME)	MTAZ0303101	1
8	TAPE(CAMERA_BTM)	MTAZ0335701	1
7	CAP (SENSOR)	MCCZ0034201	1
6	CAP (SPEAKER)	MCCZ0036801	1
5	CAP (MIC BTM)	MCCZ0034101	1
4	BUTTON (POWER)	MBJZ0034901	1
3	BUTTON (CAMERA)	MBJZ0034801	1
2	BUTTON (SIDE)	MBJZ0035001	1
1	CAP,RECEPTACLE	MCCE0055501	1
No	Part Name	Part Number	Q'ty

11. EXPLODED VIEW & REPLACEMENT PART LIST

ASS'Y EXPLODED VIEW



30	INSULATOR (Power key)	MIDZ026500I	I
29	TAPE(CAMERA BTM)	MTAZ033570I	I
28	PAD(SENSOR)	MPBZ024840I	I
27	COVER ASSY BATTERY	ACGA003380I	I
26	COVER ASSY, REAR	ACGM014590I	I
25	PCB ASSY,MAIN	SAFY034960I	I
24	BATTERY PACK,LI-ION	SBPL010000I	I
23	TAPE(5M CAMERA + FRAME)	MTAZ030310I	I
22	SCREW MACHINE,BIND	GMEY001120I	6
21	DECO ASSY (REAR)	ADBY001590I	I
20	FRAME ASSY	AFBZ001590I	I
19	MOTOR	SJMY0008510	I
18	CAP (MIC TOP)	MCCZ003400I	2
17	SPEAKER	SUSY0027615	I
16	PAD (CAMERA CONN)	MPBZ026890I	I
15	PAD (RECEIVER_후면)	MPBZ027200I	I
14	RF CABLE	SWCC000930I	I
13	RECEIVER	SURY0010109	I
12	CAMERA MODULE	SVCY002500I	I
11	PCB ASSY,FLEXIBLE	SACY010320I	I
10	TAPE(5M CAMERA)	MTAZ028550I	I
9	PAD (LCD CONN)	MPBZ024850I	I
8	CAP (SENSOR)	MCCZ003420I	I
7	CAP (SPEAKER)	MCCZ003680I	I
6	CAP (MIC BTM)	MCCZ003410I	I
5	PAD (RECEIVER_전면)	MPBZ024830I	I
4	BUTTON (SIDE)	MBJZ001500I	I
3	BUTTON (POWER)	MBJZ001490I	I
2	BUTTON (CAMERA)	MBJZ001480I	I
1	COVER ASSY,FRONT	ACGK014760I	I
No	Part Name	Part Number	Q'ty

11. EXPLODED VIEW & REPLACEMENT PART LIST

11.2 Replacement Parts

<Mechanic component>

Note: This Chapter is used for reference, Part order is ordered by SBOM standard on GCSC

Level	Location No.	Description	Part Number	Spec	Color	Remark
2	AAAY00	ADDITION	AAAY0454201		BLACK	
3	AMBA00	MANUAL ASSY,OPERATION	AMBA0175301	GD880 manual assy for ORF	WITHOUT COLOR	
4	MCDE00	CARD,SERVICE GUIDE	MCDE0007101	PRINTING, (empty), , , ,	WITHOUT COLOR	
4	MMBB00	MANUAL,OPERATION	MMBB0374201	PRINTING, (empty), , , ,	WITHOUT COLOR	
2	APAY00	PACKAGE	APAY0142901	GD880 ORF(TR7-1/ORF UB/Void/12403_Pallet/500ea)	WITHOUT COLOR	
3	APLY00	PALLET ASSY	APLY0003203	TDR TR1-1 ORG STD Palletizing	Without Color	
4	MPBZ00	PAD	MPBZ0219601	COMPLEX, (empty), , 503, 860, 145,	Without Color	U
4	MPCY00	PALLET	MPCY0012403	COMPLEX, (empty), , , ,	DARK BLUE	
3	MLAC00	LABEL,BARCODE	MLAC0004541	PRINTING, (empty), , , ,	Without Color	
3	MLAZ00	LABEL	MLAZ0037104	PRINTING, (empty), , , ,	METAL SILVER	
3	MLAZ01	LABEL	MLAZ0050901	PRINTING, (empty), , , ,	WITHOUT COLOR	
3	MPAE	PACKING,BLISTER	MPAE0008202	COMPLEX, (empty), , , ,	WITHOUT COLOR	
3	MPAE01	PACKING,BLISTER	MPAE0008203	COMPLEX, (empty), , , ,	WITHOUT COLOR	
2	APEY00	PHONE	APEY0873401		BLACK	
3	ACGA00	COVER ASSY,BATTERY	ACGA0033802	GD880_BATT,COVER ASSY_ORANGE	BLACK	Q', 27
4	MCJA00	COVER,BATTERY	MCJA0100602	MOLD, PC LUPOY SC-1004A, , , ,	BLACK	
3	ACGY00	COVER ASSY,EMS	ACGY0009001		BLACK	
4	ACGM00	COVER ASSY,REAR	ACGM0145901		BLACK	26
5	MCJN00	COVER,REAR	MCJN0112101	MOLD, PC LUPOY SC-1004A, , , ,	BLACK	N'
6	MBIZ00	BUSHING	MBIZ0004901	CASTING, Zn Alloy, , , ,	WITHOUT COLOR	
6	MBIZ01	BUSHING	MBIZ0005201	CASTING, Zn Alloy, , , ,	WITHOUT COLOR	
6	MFEZ00	FRAME	MFEZ0023201	PRESS, STS, , , ,	WITHOUT COLOR	
5	MDAY00	DECO	MDAY0046301	PRESS, STS, , , ,	SILVER	

11. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Spec	Color	Remark
5	MGAZ00	GASKET	MGAZ0075701	PRESS, STS, , , , ,	WITHOUT COLOR	
5	MIDZ00	INSULATOR	MIDZ0242701	COMPLEX, (empty), , , , ,	WITHOUT COLOR	I'
5	MIDZ02	INSULATOR	MIDZ0249001	COMPLEX, (empty), , , , ,	WITHOUT COLOR	G'
5	MPBT00	PAD,CAMERA	MPBT0085601	COMPLEX, (empty), , , , ,	WITHOUT COLOR	J'
5	MPBZ00	PAD	MPBZ0316101	COMPLEX, (empty), , , , ,	WITHOUT COLOR	
5	MSAZ00	SHEET	MSAZ0063001	COMPLEX, (empty), , , , ,	BLACK	K'
5	MTAD00	TAPE,WINDOW	MTAD0116901	COMPLEX, (empty), , , , ,	WITHOUT COLOR	L'
5	MTAZ00	TAPE	MTAZ0314001	COMPLEX, (empty), , , , ,	WITHOUT COLOR	H'
5	MWAE00	WINDOW,CAMERA	MWAE0054201	MOLD, Tempered Glass, , , , ,	BLACK	M'
4	ACGV	COVER ASSY,BAR	ACGV0012601	GD880_COVER ASSY,BAR_FRANCE	BLACK	
5	ACGK00	COVER ASSY,FRONT	ACGK0147601		BLACK	1
6	MCCE00	CAP,RECEPTACLE	MCCE0055501	MOLD, PC LUPOY SC-1004A, , , , ,	SILVER	A
6	MCCG00	CAP,MULTIMEDIA CARD	MCCG0022801	PRESS, STS, , , , ,	SILVER	
6	MCJK00	COVER,FRONT	MCJK0117101	MOLD, PC LUPOY SC-1004A, , , , ,	BLACK	
7	MFEZ00	FRAME	MFEZ0023101	PRESS, STS, , , , ,	WITHOUT COLOR	
7	MICA00	INSERT,FRONT	MICA0019701	CASTING, Zn Alloy, , , , ,	WITHOUT COLOR	
6	MDAY00	DECO	MDAY0045701	MOLD, PC LUPOY SC-1004A, , , , ,	BLACK	
6	MDAY01	DECO	MDAY0045801	MOLD, PC LUPOY SC-1004A, , , , ,	BLACK	
6	MDAY02	DECO	MDAY0045901	PRESS, STS, , , , ,	SILVER	
7	MBIZ00	BUSHING	MBIZ0004901	CASTING, Zn Alloy, , , , ,	WITHOUT COLOR	
7	MDAY00	DECO	MDAY0046201	PRESS, STS, , , , ,	SILVER	
6	MDAY03	DECO	MDAY0046001	PRESS, STS, , , , ,	SILVER	
6	MDAY04	DECO	MDAY0046101	PRESS, STS, , , , ,	SILVER	
6	MPBT00	PAD,CAMERA	MPBT0085701	COMPLEX, (empty), , , , ,	WITHOUT COLOR	
6	MPFZ00	PLATE	MPFZ0050701	PRESS, STS, , , , ,	WITHOUT COLOR	
6	MTAA00	TAPE,DECO	MTAA0214801	COMPLEX, (empty), , , , ,	WITHOUT COLOR	

11. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Spec	Color	Remark
6	MTAA01	TAPE,DECO	MTAA0208301	COMPLEX, (empty), , , ,	WITHOUT COLOR	
6	MTAA02	TAPE,DECO	MTAA0208401	COMPLEX, (empty), , , ,	WITHOUT COLOR	
6	MTAA03	TAPE,DECO	MTAA0218101	COMPLEX, (empty), , , ,	WITHOUT COLOR	
6	MTAA04	TAPE,DECO	MTAA0218201	COMPLEX, (empty), , , ,	WITHOUT COLOR	
6	MTAD00	TAPE,WINDOW	MTAD0117001	COMPLEX, (empty), , , ,	WITHOUT COLOR	
6	MWAE00	WINDOW,CAMERA	MWAE0054101	MOLD, PC LUPOY HI-1002M, , , ,	BLACK	
5	ADBY00	DECO ASSY	ADBY0015901	REAR	BLACK	21
6	MCCZ00	CAP	MCCZ0033901	MOLD, Silicone Rubber KE971-U, , , ,	BLACK	A'
6	MDAY00	DECO	MDAY0045601	MOLD, PC LUPOY SC-1004A, , , ,	BLACK	Y
6	MTAZ00	TAPE	MTAZ0256901	COMPLEX, (empty), , , ,	WITHOUT COLOR	X
5	AFBZ00	FRAME ASSY	AFBZ0015901		BLACK	20
6	MFEZ00	FRAME	MFEZ0023001	MOLD, PC LUPOY SC-1004A, , , ,	BLACK	B'
6	MPBZ00	PAD	MPBZ0248201	COMPLEX, (empty), , , ,	WITHOUT COLOR	C', 5
5	GMEY00	SCREW MACHINE,BIND	GMEY0011201	1.4 mm,3 mm,MSWR3(BK) ,N ,+ ,NYLOK	WITHOUT COLOR	O', 22
5	MBJZ01	BUTTON	MBJZ0014801	PRESS, STS, , , ,	SILVER	2
대치		BUTTON	MBJZ0034801	PRESS, STS, , , ,	WITHOUT COLOR	C
5	MBJZ02	BUTTON	MBJZ0014901	PRESS, STS, , , ,	SILVER	3
대치		BUTTON	MBJZ0034901	PRESS, STS, , , ,	WITHOUT COLOR	D
5	MBJZ03	BUTTON	MBJZ0015001	PRESS, STS, , , ,	SILVER	4
대치		BUTTON	MBJZ0035001	PRESS, STS, , , ,	WITHOUT COLOR	B
5	MCCZ00	CAP	MCCZ0034101	MOLD, Silicone Rubber KE971-U, , , ,	BLACK	E, 6
6	MFBZ00	FILTER	MFBZ0005601	COMPLEX, (empty), , , ,	WITHOUT COLOR	
5	MCCZ01	CAP	MCCZ0034001	MOLD, Silicone Rubber KE971-U, , , ,	BLACK	Q, 18
6	MFBZ00	FILTER	MFBZ0005501	COMPLEX, (empty), , , ,	WITHOUT COLOR	
5	MCCZ03	CAP	MCCZ0034201	MOLD, Silicone Rubber KE971-U, , , ,	BLACK	G, 8
5	MCCZ04	CAP	MCCZ0036801	MOLD, Silicone Rubber KE971-U, , , ,	BLACK	F, 7

11. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Spec	Color	Remark
6	MFBZ00	FILTER	MFBZ0012001	COMPLEX, (empty), , , ,	WITHOUT COLOR	
5	MIDZ00	INSULATOR	MIDZ0265001	COMPLEX, (empty), , , ,	WITHOUT COLOR	N, 30
5	MLAR00	LABEL,WARNING	MLAR0005301	COMPLEX, (empty), , , ,	YELLOW	
5	MPBZ00	PAD	MPBZ0248501	COMPLEX, (empty), , , ,	WITHOUT COLOR	K, 9
5	MPBZ01	PAD	MPBZ0248301	COMPLEX, (empty), , , ,	WITHOUT COLOR	J
5	MPBZ02	PAD	MPBZ0248401	COMPLEX, (empty), , , ,	WITHOUT COLOR	O, 28
5	MPBZ03	PAD	MPBZ0268901	COMPLEX, (empty), , , ,	WITHOUT COLOR	16
5	MPBZ05	PAD	MPBZ0272001	COMPLEX, (empty), , , ,	WITHOUT COLOR	P, 15
5	MTAB01	TAPE,PROTECTION	MTAB0352401	COMPLEX, (empty), , , ,	WITHOUT COLOR	
5	MTAB02	TAPE,PROTECTION	MTAB0352301	COMPLEX, (empty), , , ,	WITHOUT COLOR	
5	MTAB03	TAPE,PROTECTION	MTAB0352701	COMPLEX, (empty), , , ,	WITHOUT COLOR	
5	MTAB04	TAPE,PROTECTION	MTAB0373801	COMPLEX, (empty), , , ,	WITHOUT COLOR	
5	MTAB05	TAPE,PROTECTION	MTAB0388501	COMPLEX, (empty), , , ,	WITHOUT COLOR	
5	MTAZ00	TAPE	MTAZ0285501	COMPLEX, (empty), , , ,	WITHOUT COLOR	R, 10
5	MTAZ01	TAPE	MTAZ0303101	COMPLEX, (empty), , , ,	WITHOUT COLOR	I, 23
5	MTAZ02	TAPE	MTAZ0335701	COMPLEX, (empty), , , ,	WITHOUT COLOR	H, 29
8	ANT400	TERMINAL,GROUND	MTCA0002701	PRESS, BeCu, , , ,	WITHOUT COLOR	
8	ANT401	TERMINAL,GROUND	MTCA0002701	PRESS, BeCu, , , ,	WITHOUT COLOR	
4	GMEY00	SCREW MACHINE,BIND	GMEY0011201	1.4 mm,3 mm,MSWR3(BK) ,N ,+ ,NYLOK	WITHOUT COLOR	
6	MCBA00	CAN,SHIELD	MCBA0062301	PRESS, STS, , , ,	WITHOUT COLOR	E'
7	MTAZ00	TAPE	MTAZ0309901	COMPLEX, (empty), , , ,	WITHOUT COLOR	D'
6	MLAB	LABEL,A/S	MLAB0004801	PRINTING, (empty), , , ,	WITHOUT COLOR	

11. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Spec	Color	Remark
6	MLAZ00	LABEL	MLAZ0038301	PID Label 4 Array	WITHOUT COLOR	
7	SC401	CAN,SHIELD	MCBA0061701	PRESS, STS, , , ,	WITHOUT COLOR	
7	SC402	BRACKET	MBFZ0039301	PRESS, STS, , , ,	WITHOUT COLOR	
7	ANT1001	CONTACT	MCIZ0002601	PRESS, BeCu, , , ,	WITHOUT COLOR	
7	ANT1002	CONTACT	MCIZ0002601	PRESS, BeCu, , , ,	WITHOUT COLOR	
3	MLAA00	LABEL,APPROVAL	MLAA0062304	COMPLEX, (empty), , , ,	WITHOUT COLOR	

11. EXPLODED VIEW & REPLACEMENT PART LIST

11.2 Replacement Parts <Main component>

Note: This Chapter is used for reference, Part order is ordered by SBOM standard on GCSC

Level	Location No.	Description	Part Number	Spec	Color	Remark
1		IMT,BAR/FLIP	TIMT0009801		COLOR UNFIXED	
4	SNGF00	ANTENNA,GSM,FIXED	SNGF0057301	3.0 ,-2.0 dBd , GPS/BT(WiFi), FPCB , ; ,DUAL ,-2.0 ,50 ,3.0		
6	SVLM00	LCD MODULE	SVLM0037001	Main ,3.18 ,480*854 ,46.1*85.7*3.85 ,16.7M ,TFT ,TM ,LG4573 ,Touch Window Hybrid ,		
6	SNGF00	ANTENNA,GSM,FIXED	SNGF0056903	3.0 ,-2.0 dBd , GSM850/GSM900/DCS/PCS/BAND1/BAND8, FPCB , ; ,MULTI ,-2.0 ,50 ,3.0		Z
5	SACY00	PCB ASSY,FLEXIBLE	SACY0103201	SUB		M, 11
6	SACB00	PCB ASSY,FLEXIBLE,INSERT	SACB0058501	SUB		
6	SACE00	PCB ASSY,FLEXIBLE,SMT	SACE0093001	SUB		
7	SACC00	PCB ASSY,FLEXIBLE,SMT BOTTOM	SACC0068401	SUB		
8	BAT400	MODULE,ETC	SMZY0023501	3.8 Backup Capacitor 0.03F , ; ,Module Assembly		
8	C102	CAP,CERAMIC,CHIP	ECCH0000112	15 pF,50V,J,NP0,TC,1005,R/TP		
8	C103	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP		
8	C105	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
8	C106	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
8	C107	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
8	C108	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
8	C109	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
8	C111	CAP,CERAMIC,CHIP	ECCH0000151	4.7 nF,25V,K,X7R,HD,1005,R/TP		
8	C112	VARISTOR	SEVY0003901	5.5 V ,SMD ,Vdc 5.5, Vb 8, Cp 420, 1.0*0.5*0.6 , ,5.5 , ,480 ,1.0*0.5*0.6 .[empty] ,SMD ,R/TP		
8	C113	VARISTOR	SEVY0003901	5.5 V ,SMD ,Vdc 5.5, Vb 8, Cp 420, 1.0*0.5*0.6 , ,5.5 , ,480 ,1.0*0.5*0.6 .[empty] ,SMD ,R/TP		
8	C114	VARISTOR	SEVY0003901	5.5 V ,SMD ,Vdc 5.5, Vb 8, Cp 420, 1.0*0.5*0.6 , ,5.5 , ,480 ,1.0*0.5*0.6 .[empty] ,SMD ,R/TP		
8	C115	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
8	C116	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
8	C117	CAP,CERAMIC,CHIP	ECCH0000185	5.6 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP		
8	C118	CAP,CERAMIC,CHIP	ECCH0000185	5.6 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP		
8	C119	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		

11. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Spec	Color	Remark
8	C120	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
8	C121	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
8	C122	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
8	C123	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
8	C124	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
8	C125	CAP,CERAMIC,CHIP	ECCH0005604	10000000 pF,6.3V ,M ,X5R ,TC ,1608 ,R/TP , , ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,0.8 mm		
8	C126	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
8	C127	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
8	C128	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
8	C200	CAP,CERAMIC,CHIP	ECCH0005604	10000000 pF,6.3V ,M ,X5R ,TC ,1608 ,R/TP , , ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,0.8 mm		
8	C201	CAP,CHIP,MAKER	ECZH0000830	33 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
8	C203	CAP,CERAMIC,CHIP	ECCH0010501	7.5 pF,50V ,D ,X7R ,TC ,1005 ,R/TP , , ,C0G TYPE(No X7R) ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,[empty]		
8	C206	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
8	C207	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
8	C208	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
8	C209	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
8	C210	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
8	C211	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
8	C212	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
8	C214	CAP,CERAMIC,CHIP	ECCH0010501	7.5 pF,50V ,D ,X7R ,TC ,1005 ,R/TP , , ,C0G TYPE(No X7R) ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,[empty]		
8	C300	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
8	C301	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
8	C302	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
8	C303	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
8	C304	CAP,CERAMIC,CHIP	ECCH0005604	10000000 pF,6.3V ,M ,X5R ,TC ,1608 ,R/TP , , ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,0.8 mm		
8	C305	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
8	C306	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
8	C307	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		

11. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Spec	Color	Remark
8	C308	CAP,CHIP,MAKER	ECZH0001120	3.9 nF,50V ,K ,X7R ,HD ,1005 ,R/TP , , ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,[empty]		
8	C309	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
8	C400	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
8	C402	CAP,CERAMIC,CHIP	ECCH0000115	22 pF,50V,J,NP0,TC,1005,R/TP		
8	C405	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
8	C406	CAP,TANTAL,CHIP	ECTH0001901	10 uF,6.3V ,M ,L_ESR ,1608 ,R/TP		
8	C407	CAP,CERAMIC,CHIP	ECCH0000112	15 pF,50V,J,NP0,TC,1005,R/TP		
8	C408	CAP,CERAMIC,CHIP	ECCH0000122	47 pF,50V,J,NP0,TC,1005,R/TP		
8	C409	CAP,CERAMIC,CHIP	ECCH0000115	22 pF,50V,J,NP0,TC,1005,R/TP		
8	C410	CAP,CERAMIC,CHIP	ECCH0000115	22 pF,50V,J,NP0,TC,1005,R/TP		
8	C411	CAP,CERAMIC,CHIP	ECCH0000115	22 pF,50V,J,NP0,TC,1005,R/TP		
8	C412	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
8	CN100	CONNECTOR,BOARD TO BOARD	ENBY0045501	60 PIN,0.4 mm,STRAIGHT , , , , ,0.40MM ,STRAIGHT ,FEMALE ,SMD ,[empty] , ,		
8	CN201	CONNECTOR,BOARD TO BOARD	ENBY0040301	34 PIN,0.4 mm,ETC , ,H=1.0, Socket		
8	CN402	CONNECTOR,ETC	ENZY0018801	PIN, mm,ETC , ,RCS=1.35		
8	D200	DIODE,TVS	EDTY0008606	DFN-2 ,7.82 V,150 mW,R/TP ,PB-FREE		
8	D300	DIODE,TVS	EDTY0009801	SOT-963 ,5 V,25 W,R/TP , , , , , , ,[empty] ,[empty] ,2P ,1		
8	D301	DIODE,TVS	EDTY0009801	SOT-963 ,5 V,25 W,R/TP , , , , , , ,[empty] ,[empty] ,2P ,1		
8	D302	DIODE,TVS	EDTY0008606	DFN-2 ,7.82 V,150 mW,R/TP ,PB-FREE		
8	FB200	FILTER,BEAD,CHIP	SFBH0009901	120 ohm,1005 ,		
8	FB201	FILTER,BEAD,CHIP	SFBH0000909	60 ohm,1005 ,		
8	FL100	FILTER,EMI/POWER	SFEY0011401	SMD ,SMD, 18V, 4ch, EMI_ESD Filter (100 Ohm, 7.5pF)		
8	FL101	FILTER,EMI/POWER	SFEY0011401	SMD ,SMD, 18V, 4ch, EMI_ESD Filter (100 Ohm, 7.5pF)		
8	FL102	FILTER,EMI/POWER	SFEY0011401	SMD ,SMD, 18V, 4ch, EMI_ESD Filter (100 Ohm, 7.5pF)		
8	FL103	FILTER,EMI/POWER	SFEY0011401	SMD ,SMD, 18V, 4ch, EMI_ESD Filter (100 Ohm, 7.5pF)		
8	FL104	FILTER,EMI/POWER	SFEY0011401	SMD ,SMD, 18V, 4ch, EMI_ESD Filter (100 Ohm, 7.5pF)		
8	FL105	FILTER,EMI/POWER	SFEY0011401	SMD ,SMD, 18V, 4ch, EMI_ESD Filter (100 Ohm, 7.5pF)		
8	FL106	FILTER,EMI/POWER	SFEY0011401	SMD ,SMD, 18V, 4ch, EMI_ESD Filter (100 Ohm, 7.5pF)		
8	FL107	FILTER,EMI/POWER	SFEY0011401	SMD ,SMD, 18V, 4ch, EMI_ESD Filter (100 Ohm, 7.5pF)		
8	FL200	FILTER,EMI/POWER	SFEY0013701	SMD ,18 V,4ch. EMI_ESD Filter (100 Ohm, 7.5pF)		

11. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Spec	Color	Remark
8	FL201	FILTER,EMI/POWER	SFEY0013701	SMD ,18 V,4ch. EMI_ESD Filter (100 Ohm, 7.5pF)		
8	FL202	FILTER,EMI/POWER	SFEY0013701	SMD ,18 V,4ch. EMI_ESD Filter (100 Ohm, 7.5pF)		
8	L300	INDUCTOR,CHIP	ELCH0004727	100 nH,J ,1005 ,R/TP ,		
8	L301	INDUCTOR,CHIP	ELCH0004727	100 nH,J ,1005 ,R/TP ,		
8	MIC400	MICROPHONE	SUMY0010609	UNIT ,-42 dB,3.76*2.95*1.1 ,mems smd mic ; , , ,OMNI ,[empty] , ,[empty]		
8	R100	PCB ASSY,MAIN,PAD SHORT	SAFP0000501			
8	R102	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
8	R103	RES,CHIP,MAKER	ERHZ0000267	3300 ohm,1/16W ,F ,1005 ,R/TP		
8	R104	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
8	R105	RES,CHIP,MAKER	ERHZ0000434	1 ohm,1/16W ,J ,1005 ,R/TP		
8	R107	RES,CHIP,MAKER	ERHZ0000485	4700 ohm,1/16W ,J ,1005 ,R/TP		
8	R108	RES,CHIP,MAKER	ERHZ0000513	820 ohm,1/16W ,J ,1005 ,R/TP		
8	R110	RES,CHIP,MAKER	ERHZ0000485	4700 ohm,1/16W ,J ,1005 ,R/TP		
8	R111	RES,CHIP,MAKER	ERHZ0000205	1 Mohm,1/16W ,F ,1005 ,R/TP		
8	R112	RES,CHIP,MAKER	ERHZ0000434	1 ohm,1/16W ,J ,1005 ,R/TP		
8	R201	RES,CHIP,MAKER	ERHZ0000434	1 ohm,1/16W ,J ,1005 ,R/TP		
8	R205	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
8	R209	RES,CHIP,MAKER	ERHZ0000485	4700 ohm,1/16W ,J ,1005 ,R/TP		
8	R210	RES,CHIP,MAKER	ERHZ0000485	4700 ohm,1/16W ,J ,1005 ,R/TP		
8	R211	RES,CHIP,MAKER	ERHZ0000484	470 ohm,1/16W ,J ,1005 ,R/TP		
8	R212	RES,CHIP,MAKER	ERHZ0000484	470 ohm,1/16W ,J ,1005 ,R/TP		
8	R213	RES,CHIP,MAKER	ERHZ0000484	470 ohm,1/16W ,J ,1005 ,R/TP		
8	R214	RES,CHIP,MAKER	ERHZ0000484	470 ohm,1/16W ,J ,1005 ,R/TP		
8	R215	RES,CHIP	ERHY0000275	56K ohm,1/16W,J,1005,R/TP		
8	R216	RES,CHIP	ERHY0000275	56K ohm,1/16W,J,1005,R/TP		
8	R300	RES,CHIP,MAKER	ERHZ0000444	22 Kohm,1/16W ,J ,1005 ,R/TP		
8	R301	RES,CHIP,MAKER	ERHZ0000444	22 Kohm,1/16W ,J ,1005 ,R/TP		
8	R302	RES,CHIP,MAKER	ERHZ0000444	22 Kohm,1/16W ,J ,1005 ,R/TP		
8	R303	RES,CHIP,MAKER	ERHZ0000444	22 Kohm,1/16W ,J ,1005 ,R/TP		
8	R304	RES,CHIP,MAKER	ERHZ0000445	220 Kohm,1/16W ,J ,1005 ,R/TP		
8	R305	RES,CHIP,MAKER	ERHZ0000456	2.2 ohm,1/16W ,J ,1005 ,R/TP		

11. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Spec	Color	Remark
5	SJMY00	VIBRATOR,MOTOR	SJMY0008510	2.0 V,0.1 A,10*3.6 ,spring ,; ,3V , , , , , ,		W, 19
5	SURY00	RECEIVER	SURY0010114	ASSY , dB, ohm,1207*2.5 ,10mm ,; , , , , , ,WIRE ,		L, 13
5	SUSY00	SPEAKER	SUSY0027615	PIN ,8 ohm,88 dB,1810 mm,module ,; , , , , , ,[empty]		V, 17
5	SVCY00	CAMERA	SVCY0025001	CMOS ,MEGA ,5M AF Toshiba(1/4"), 8.5x8.5x5.4t,RAW,90degree,FPCB		T, 12
5	SWCC00	CABLE,COAXIAL	SWCC0009301	78 mm,1 LINE,U.FL_W.FL ,; ,[empty] ,[empty] ,0.075M , ,[empty] , ,[empty]		S, 14
4	SAFY	PCB ASSY,MAIN	SAFY0349601			25
5	SAFB00	PCB ASSY,MAIN,INSERT	SAFB0107801			
6	BRAH00	RESIN,PC	BRAH0001301	; , , , , [empty]	Black	
5	SAFF00	PCB ASSY,MAIN,SMT	SAFF0260601			F'
6	SAFC00	PCB ASSY,MAIN,SMT BOTTOM	SAFC0137201			
7	C1113	CAP,CERAMIC,CHIP	ECCH0009230	2200 pF,10V ,K ,X5R ,TC ,0603 ,R/TP , , , [empty] ,[empty] ,[empty] ,[empty] ,[empty] ,[empty]		
7	C200	CAP,CERAMIC,CHIP	ECCH0000112	15 pF,50V ,J ,NP0 ,TC,1005,R/TP		
7	C201	CAP,CHIP,MAKER	ECZH0025917	47 pF,25V ,J ,NP0 ,TC ,0603 ,R/TP		
7	C202	CAP,CERAMIC,CHIP	ECCH0017301	1000000 pF,6.3V ,M ,X5R ,HD ,0603 ,R/TP ,; ,1 ,20% ,6.3V ,X5R , -55TO+85C ,0603 ,R/TP ,0.3 mm		
7	C203	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
7	C204	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
7	C205	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
7	C206	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
7	C207	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
7	C208	CAP,CERAMIC,CHIP	ECCH0017301	1000000 pF,6.3V ,M ,X5R ,HD ,0603 ,R/TP ,; ,1 ,20% ,6.3V ,X5R , -55TO+85C ,0603 ,R/TP ,0.3 mm		
7	C209	CAP,CERAMIC,CHIP	ECCH0009103	100 pF,50V ,J ,X7R ,TC ,0603 ,R/TP , , , [empty] ,[empty] ,C0G , [empty] ,[empty] ,[empty] ,0.3 mm		
7	C210	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
7	C211	CAP,TANTAL,CHIP	ECTH0001903	22 uF,6.3V ,M ,L_ ESR ,1608 ,R/TP		
7	C212	CAP,CHIP,MAKER	ECZH0025920	1 nF,16V ,K ,X7R ,HD ,0603 ,R/TP , , , [empty] ,[empty] ,[empty] ,[empty] ,[empty] ,[empty]		
7	C213	CAP,CERAMIC,CHIP	ECCH0009106	10 nF,16V ,K ,X7R ,TC ,0603 ,R/TP		
7	C214	CAP,CHIP,MAKER	ECZH0025920	1 nF,16V ,K ,X7R ,HD ,0603 ,R/TP , , , [empty] ,[empty] ,[empty] ,[empty] ,[empty] ,[empty]		
7	C215	CAP,CERAMIC,CHIP	ECCH0009103	100 pF,50V ,J ,X7R ,TC ,0603 ,R/TP , , , [empty] ,[empty] ,C0G , [empty] ,[empty] ,[empty] ,0.3 mm		

11. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Spec	Color	Remark
7	C216	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
7	C217	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
7	C218	CAP,CHIP,MAKER	ECZH0025916	33 pF,25V ,J ,NP0 ,TC ,0603 ,R/TP		
7	C219	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
7	C220	CAP,CERAMIC,CHIP	ECCH0009203	33 nF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
7	C221	CAP,CHIP,MAKER	ECZH0025917	47 pF,25V ,J ,NP0 ,TC ,0603 ,R/TP		
7	C222	CAP,CHIP,MAKER	ECZH0025917	47 pF,25V ,J ,NP0 ,TC ,0603 ,R/TP		
7	C223	CAP,CERAMIC,CHIP	ECCH0009226	39 pF,25V ,J ,X7R ,TC ,0603 ,R/TP		
7	C300	CAP,CERAMIC,CHIP	ECCH0009106	10 nF,16V ,K ,X7R ,TC ,0603 ,R/TP		
7	C301	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
7	C303	CAP,CHIP,MAKER	ECZH0025920	1 nF,16V ,K ,X7R ,HD ,0603 ,R/TP , , [empty] , [empty] [empty] , [empty] , [empty] , [empty]		
7	C304	CAP,CHIP,MAKER	ECZH0025920	1 nF,16V ,K ,X7R ,HD ,0603 ,R/TP , , [empty] , [empty] [empty] , [empty] , [empty] , [empty]		
7	C305	CAP,CHIP,MAKER	ECZH0025920	1 nF,16V ,K ,X7R ,HD ,0603 ,R/TP , , [empty] , [empty] [empty] , [empty] , [empty] , [empty]		
7	C306	CAP,CHIP,MAKER	ECZH0025920	1 nF,16V ,K ,X7R ,HD ,0603 ,R/TP , , [empty] , [empty] [empty] , [empty] , [empty] , [empty]		
7	C307	CAP,CHIP,MAKER	ECZH0025920	1 nF,16V ,K ,X7R ,HD ,0603 ,R/TP , , [empty] , [empty] [empty] , [empty] , [empty] , [empty]		
7	C310	CAP,CHIP,MAKER	ECZH0025920	1 nF,16V ,K ,X7R ,HD ,0603 ,R/TP , , [empty] , [empty] [empty] , [empty] , [empty] , [empty]		
7	C311	CAP,CHIP,MAKER	ECZH0025920	1 nF,16V ,K ,X7R ,HD ,0603 ,R/TP , , [empty] , [empty] [empty] , [empty] , [empty] , [empty]		
7	C312	CAP,CERAMIC,CHIP	ECCH0009106	10 nF,16V ,K ,X7R ,TC ,0603 ,R/TP		
7	C313	CAP,CERAMIC,CHIP	ECCH0009106	10 nF,16V ,K ,X7R ,TC ,0603 ,R/TP		
7	C314	CAP,CHIP,MAKER	ECZH0025920	1 nF,16V ,K ,X7R ,HD ,0603 ,R/TP , , [empty] , [empty] [empty] , [empty] , [empty] , [empty]		
7	C315	CAP,CERAMIC,CHIP	ECCH0017601	4.7 uF,6.3V ,M ,X5R ,HD ,1005 ,R/TP , , , , 20% , 6.3V X5R , -55TO+85C ,1005 ,R/TP , mm		
7	C316	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
7	C317	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
7	C318	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
7	C319	CAP,CERAMIC,CHIP	ECCH0009106	10 nF,16V ,K ,X7R ,TC ,0603 ,R/TP		
7	C321	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
7	C322	CAP,CHIP,MAKER	ECZH0025920	1 nF,16V ,K ,X7R ,HD ,0603 ,R/TP , , [empty] , [empty] [empty] , [empty] , [empty] , [empty]		

11. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Spec	Color	Remark
7	C323	CAP,CHIP,MAKER	ECZH0025920	1 nF,16V ,K ,X7R ,HD ,0603 ,R/TP , , ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,[empty]		
7	C324	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
7	C325	CAP,CERAMIC,CHIP	ECCH0009106	10 nF,16V ,K ,X7R ,TC ,0603 ,R/TP		
7	C326	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
7	C327	CAP,CERAMIC,CHIP	ECCH0009106	10 nF,16V ,K ,X7R ,TC ,0603 ,R/TP		
7	C328	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
7	C329	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
7	C330	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
7	C331	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
7	C332	CAP,CHIP,MAKER	ECZH0025920	1 nF,16V ,K ,X7R ,HD ,0603 ,R/TP , , ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,[empty]		
7	C333	CAP,CERAMIC,CHIP	ECCH0005604	10000000 pF,6.3V ,M ,X5R ,TC ,1608 ,R/TP , , ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,0.8 mm		
7	C334	CAP,CERAMIC,CHIP	ECCH0005604	10000000 pF,6.3V ,M ,X5R ,TC ,1608 ,R/TP , , ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,0.8 mm		
7	C335	CAP,CERAMIC,CHIP	ECCH0005604	10000000 pF,6.3V ,M ,X5R ,TC ,1608 ,R/TP , , ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,0.8 mm		
7	C336	CAP,CERAMIC,CHIP	ECCH0005604	10000000 pF,6.3V ,M ,X5R ,TC ,1608 ,R/TP , , ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,0.8 mm		
7	C337	CAP,CERAMIC,CHIP	ECCH0005604	10000000 pF,6.3V ,M ,X5R ,TC ,1608 ,R/TP , , ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,0.8 mm		
7	C338	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
7	C339	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
7	C340	CAP,CERAMIC,CHIP	ECCH0017601	4.7 uF,6.3V ,M ,X5R ,HD ,1005 ,R/TP , , ,20% ,6.3V ,X5R , -55TO+85C ,1005 ,R/TP , mm		
7	C341	CAP,CHIP,MAKER	ECZH0025920	1 nF,16V ,K ,X7R ,HD ,0603 ,R/TP , , ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,[empty]		
7	C342	CAP,CERAMIC,CHIP	ECCH0017601	4.7 uF,6.3V ,M ,X5R ,HD ,1005 ,R/TP , , ,20% ,6.3V ,X5R , -55TO+85C ,1005 ,R/TP , mm		
7	C343	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
7	C400	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
7	C401	CAP,CERAMIC,CHIP	ECCH0006201	4.7 uF,6.3V ,K ,X5R ,TC ,1608 ,R/TP		
7	C402	CAP,CHIP,MAKER	ECZH0025916	33 pF,25V ,J ,NP0 ,TC ,0603 ,R/TP		
7	C403	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
7	C404	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
7	C405	CAP,CERAMIC,CHIP	ECCH0006201	4.7 uF,6.3V ,K ,X5R ,TC ,1608 ,R/TP		

11. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Spec	Color	Remark
7	C406	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
7	C407	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
7	C408	CAP,CERAMIC,CHIP	ECCH0006201	4.7 uF,6.3V ,K ,X5R ,TC ,1608 ,R/TP		
7	C409	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
7	C410	CAP,CERAMIC,CHIP	ECCH0006201	4.7 uF,6.3V ,K ,X5R ,TC ,1608 ,R/TP		
7	C411	CAP,CERAMIC,CHIP	ECCH0017301	1000000 pF,6.3V ,M ,X5R ,HD ,0603 ,R/TP , , 1 ,20% ,6.3V ,X5R , -55TO+85C ,0603 ,R/TP ,0.3 mm		
7	C412	CAP,CHIP,MAKER	ECZH0025920	1 nF,16V ,K ,X7R ,HD ,0603 ,R/TP , , [empty] ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,[empty]		
7	C413	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
7	C414	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
7	C415	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
7	C416	CAP,CERAMIC,CHIP	ECCH0005604	10000000 pF,6.3V ,M ,X5R ,TC ,1608 ,R/TP , , [empty] ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,0.8 mm		
7	C417	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
7	C418	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
7	C419	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
7	C420	CAP,CERAMIC,CHIP	ECCH0006201	4.7 uF,6.3V ,K ,X5R ,TC ,1608 ,R/TP		
7	C421	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
7	C422	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
7	C423	CAP,CHIP,MAKER	ECZH0025920	1 nF,16V ,K ,X7R ,HD ,0603 ,R/TP , , [empty] ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,[empty]		
7	C424	CAP,CHIP,MAKER	ECZH0025920	1 nF,16V ,K ,X7R ,HD ,0603 ,R/TP , , [empty] ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,[empty]		
7	C425	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
7	C426	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
7	C427	CAP,CHIP,MAKER	ECZH0025920	1 nF,16V ,K ,X7R ,HD ,0603 ,R/TP , , [empty] ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,[empty]		
7	C428	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
7	C429	CAP,CERAMIC,CHIP	ECCH0000115	22 pF,50V,J,NP0,TC,1005,R/TP		
7	C430	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
7	C431	CAP,CHIP,MAKER	ECZH0025920	1 nF,16V ,K ,X7R ,HD ,0603 ,R/TP , , [empty] ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,[empty]		
7	C432	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
7	C433	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
7	C434	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		

11. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Spec	Color	Remark
7	C435	CAP,CERAMIC,CHIP	ECCH0000115	22 pF,50V,J,NP0,TC,1005,R/TP		
7	C436	CAP,CHIP,MAKER	ECZH0025920	1 nF,16V ,K ,X7R ,HD ,0603 ,R/TP , , ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,[empty]		
7	C437	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
7	C438	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
7	C439	CAP,CERAMIC,CHIP	ECCH0006201	4.7 uF,6.3V ,K ,X5R ,TC ,1608 ,R/TP		
7	C440	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
7	C441	CAP,CERAMIC,CHIP	ECCH0005604	10000000 pF,6.3V ,M ,X5R ,TC ,1608 ,R/TP , , ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,0.8 mm		
7	C442	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
7	C445	CAP,CERAMIC,CHIP	ECCH0017301	1000000 pF,6.3V ,M ,X5R ,HD ,0603 ,R/TP , , ,1 ,20% ,6.3V ,X5R , -55TO+85C ,0603 ,R/TP ,0.3 mm		
7	C446	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
7	C453	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
7	C454	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
7	C460	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
7	C461	CAP,CERAMIC,CHIP	ECCH0017301	1000000 pF,6.3V ,M ,X5R ,HD ,0603 ,R/TP , , ,1 ,20% ,6.3V ,X5R , -55TO+85C ,0603 ,R/TP ,0.3 mm		
7	C514	CAP,CERAMIC,CHIP	ECCH0009216	22 pF,25V ,J ,X7R ,TC ,0603 ,R/TP		
7	C600	CAP,CERAMIC,CHIP	ECCH0017301	1000000 pF,6.3V ,M ,X5R ,HD ,0603 ,R/TP , , ,1 ,20% ,6.3V ,X5R , -55TO+85C ,0603 ,R/TP ,0.3 mm		
7	C601	CAP,CERAMIC,CHIP	ECCH0017301	1000000 pF,6.3V ,M ,X5R ,HD ,0603 ,R/TP , , ,1 ,20% ,6.3V ,X5R , -55TO+85C ,0603 ,R/TP ,0.3 mm		
7	C602	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
7	C606	CAP,CHIP,MAKER	ECZH0001126	820 pF,50V ,K ,X7R ,HD ,1005 ,R/TP		
7	C607	CAP,CERAMIC,CHIP	ECCH0017301	1000000 pF,6.3V ,M ,X5R ,HD ,0603 ,R/TP , , ,1 ,20% ,6.3V ,X5R , -55TO+85C ,0603 ,R/TP ,0.3 mm		
7	C608	CAP,CERAMIC,CHIP	ECCH0017301	1000000 pF,6.3V ,M ,X5R ,HD ,0603 ,R/TP , , ,1 ,20% ,6.3V ,X5R , -55TO+85C ,0603 ,R/TP ,0.3 mm		
7	C609	CAP,CERAMIC,CHIP	ECCH0017301	1000000 pF,6.3V ,M ,X5R ,HD ,0603 ,R/TP , , ,1 ,20% ,6.3V ,X5R , -55TO+85C ,0603 ,R/TP ,0.3 mm		
7	C610	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
7	C611	CAP,CERAMIC,CHIP	ECCH0006201	4.7 uF,6.3V ,K ,X5R ,TC ,1608 ,R/TP		
7	C612	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
7	C613	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
7	C614	CAP,CERAMIC,CHIP	ECCH0005604	10000000 pF,6.3V ,M ,X5R ,TC ,1608 ,R/TP , , ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,0.8 mm		

11. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Spec	Color	Remark
7	C615	CAP,CERAMIC,CHIP	ECCH0006201	4.7 uF,6.3V ,K ,X5R ,TC ,1608 ,R/TP		
7	C616	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
7	C617	CAP,CERAMIC,CHIP	ECCH0007802	4.7 uF,10V ,M ,X5R ,TC ,1608 ,R/TP		
7	C618	CAP,CERAMIC,CHIP	ECCH0005604	10000000 pF,6.3V ,M ,X5R ,TC ,1608 ,R/TP , , ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,0.8 mm		
7	C619	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
7	C620	CAP,CHIP,MAKER	ECZH0025908	8 pF,25V ,D ,NP0 ,TC ,0603 ,R/TP		
7	C621	CAP,CERAMIC,CHIP	ECCH0017301	1000000 pF,6.3V ,M ,X5R ,HD ,0603 ,R/TP , , ,1 ,20% ,6.3V ,X5R ,55TO+85C ,0603 ,R/TP ,0.3 mm		
7	C622	CAP,CHIP,MAKER	ECZH0025920	1 nF,16V ,K ,X7R ,HD ,0603 ,R/TP , , ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,[empty]		
7	C625	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
7	C7	CAP,CHIP,MAKER	ECZH0025916	33 pF,25V ,J ,NP0 ,TC ,0603 ,R/TP		
7	CN400	CONNECTOR,I/O	ENRY0008701	5 , mm,ETC , , , , ,0.60MM ,[empty] ,RECEPTACLE ,[empty] ,[empty] ,		
7	CN401	CONNECTOR,ETC	ENZY0026901	3 ,2.5 mm,ETC , - , -		
7	CN500	CONNECTOR,BOARD TO BOARD	ENBY0051201	80 , mm,STRAIGHT , , , , ,0.40MM ,[empty] ,FEMALE ,[empty] ,[empty] , ,		
7	D200	DIODE,TVS	EDTY0008606	DFN-2 ,7.82 V,150 mW,R/TP ,PB-FREE		
7	D400	DIODE,SWITCHING	EDSY0010501	ESC ,30 V,100 mA,R/TP ,SWITCH DIODE		
7	D401	DIODE,TVS	EDTY0008606	DFN-2 ,7.82 V,150 mW,R/TP ,PB-FREE		
7	D502	DIODE,TVS	EDTY0008606	DFN-2 ,7.82 V,150 mW,R/TP ,PB-FREE		
7	D503	DIODE,TVS	EDTY0008606	DFN-2 ,7.82 V,150 mW,R/TP ,PB-FREE		
7	FB600	FILTER,BEAD,CHIP	SFBH0008101	600 ohm,1005 ,		
7	J500	CONN,JACK/PLUG,EARPHONE	ENJE0006701	4 ,5 PIN , , ,4P ,4P ,ANGLE ,[empty] , ,BLACK ,		
7	L400	INDUCTOR,SMD,POWER	ELCP0008012	4.7 uH,M ,2.5*2*1.2 ,R/TP ,Coil , , ,4.7 ,20% , , ,1.3 ,0.338 , , , ,SHIELD ,2.5X2X1MM ,[empty] ,R/TP ,Inductor,Wire Wound,Chip		
7	L401	INDUCTOR,SMD,POWER	ELCP0008012	4.7 uH,M ,2.5*2*1.2 ,R/TP ,Coil , , ,4.7 ,20% , , ,1.3 ,0.338 , , , ,SHIELD ,2.5X2X1MM ,[empty] ,R/TP ,Inductor,Wire Wound,Chip		
7	L402	INDUCTOR,SMD,POWER	ELCP0008012	4.7 uH,M ,2.5*2*1.2 ,R/TP ,Coil , , ,4.7 ,20% , , ,1.3 ,0.338 , , , ,SHIELD ,2.5X2X1MM ,[empty] ,R/TP ,Inductor,Wire Wound,Chip		
7	L403	INDUCTOR,SMD,POWER	ELCP0008012	4.7 uH,M ,2.5*2*1.2 ,R/TP ,Coil , , ,4.7 ,20% , , ,1.3 ,0.338 , , , ,SHIELD ,2.5X2X1MM ,[empty] ,R/TP ,Inductor,Wire Wound,Chip		
7	L500	INDUCTOR,CHIP	ELCH0001430	100 nH,J ,1005 ,R/TP ,PBFREE		
7	L600	INDUCTOR,SMD,POWER	ELCP0008001	4.7 uH,M ,2.5*2.0*1.0 ,R/TP ,		

11. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Spec	Color	Remark
7	L610	INDUCTOR,SMD,POWER	ELCP0008007	3.3 uH,N ,2.5*2.0*1.0 ,R/TP ,MLCI Power ,; ,3.3 ,30% ,; ,; ,; ,; ,SHIELD ,2.5X2X1MM ,[empty] ,[empty] ,Inductor,Wire Wound,Chip		
7	R200	RES,CHIP	ERHY0000290	300K ohm,1/16W ,J ,1005 ,R/TP		
7	R201	RES,CHIP,MAKER	ERHZ0000222	150 Kohm,1/16W ,F ,1005 ,R/TP		
7	R202	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
7	R203	PCB ASSY,MAIN,PAD OPEN	SAFO0000401	00HM DNI		
7	R204	RES,CHIP	ERHY0009503	100 ohm,1/20W(0.05W) ,J ,0603 ,R/TP		
7	R206	RES,CHIP	ERHY0009503	100 ohm,1/20W(0.05W) ,J ,0603 ,R/TP		
7	R207	RES,CHIP	ERHY0009503	100 ohm,1/20W(0.05W) ,J ,0603 ,R/TP		
7	R208	RES,CHIP	ERHY0009504	1 Kohm,1/20W(0.05W) ,J ,0603 ,R/TP		
7	R209	RES,CHIP	ERHY0024201	6040 ohm,1/16W ,F ,1005 ,R/TP ,; ,6040 ,1% ,1/16W ,1005 ,R/TP		
7	R210	RES,CHIP,MAKER	ERHZ0000463	33 ohm,1/16W ,J ,1005 ,R/TP		
7	R211	RES,CHIP	ERHY0000104	49.9 ohm,1/16W,F,1005,R/TP		
7	R212	RES,CHIP	ERHY0009505	10 Kohm,1/20W(0.05W) ,J ,0603 ,R/TP		
7	R213	RES,CHIP,MAKER	ERHZ0000204	100 Kohm,1/16W ,F ,1005 ,R/TP		
7	R214	RES,CHIP	ERHY0009592	2000 ohm,1/20W(0.05W) ,J ,0603 ,R/TP		
7	R216	RES,CHIP	ERHY0009506	100 Kohm,1/20W(0.05W) ,J ,0603 ,R/TP		
7	R218	RES,CHIP	ERHY0009527	47 Kohm,1/20W(0.05W) ,J ,0603 ,R/TP		
7	R301	RES,CHIP	ERHY0009505	10 Kohm,1/20W(0.05W) ,J ,0603 ,R/TP		
7	R308	RES,CHIP	ERHY0009536	100 Kohm,1/20W(0.05W) ,F ,0603 ,R/TP		
7	R403	RES,CHIP,MAKER	ERHZ0000488	4.7 ohm,1/16W ,J ,1005 ,R/TP		
7	R404	RES,CHIP	ERHY0009547	200 Kohm,1/20W(0.05W) ,F ,0603 ,R/TP		
7	R406	RES,CHIP	ERHY0000105	51 ohm,1/16W,F,1005,R/TP		
7	R407	RES,CHIP	ERHY0009505	10 Kohm,1/20W(0.05W) ,J ,0603 ,R/TP		
7	R409	RES,CHIP,MAKER	ERHZ0004201	121000 ohm,1/16W ,F ,1005 ,R/TP		
7	R423	RES,CHIP	ERHY0009504	1 Kohm,1/20W(0.05W) ,J ,0603 ,R/TP		
7	R433	RES,CHIP,MAKER	ERHZ0000318	80.6 Kohm,1/16W ,F ,1005 ,R/TP		
7	R434	RES,CHIP,MAKER	ERHZ0000537	680000 ohm,1/16W ,F ,1005 ,R/TP		
7	R435	RES,CHIP,MAKER	ERHZ0000288	470 Kohm,1/16W ,F ,1005 ,R/TP		
7	R436	RES,CHIP	ERHY0009504	1 Kohm,1/20W(0.05W) ,J ,0603 ,R/TP		
7	R437	RES,CHIP	ERHY0009527	47 Kohm,1/20W(0.05W) ,J ,0603 ,R/TP		

11. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Spec	Color	Remark
7	R438	RES,CHIP	ERHY0009504	1 Kohm,1/20W(0.05W) ,J ,0603 ,R/TP		
7	R439	RES,CHIP	ERHY0009505	10 Kohm,1/20W(0.05W) ,J ,0603 ,R/TP		
7	R507	RES,CHIP	ERHY0009507	1 Mohm,1/20W(0.05W) ,J ,0603 ,R/TP		
7	R600	PCB ASSY,MAIN,PAD SHORT	SAFP0000401			
7	R605	RES,CHIP	ERHY0009536	100 Kohm,1/20W(0.05W) ,F ,0603 ,R/TP		
7	U200	IC	EUSY0392302	560 NSP ,12 ,R/TP ,ARM11(600M),UPA5.7,FWGA,8M,WVGA30fps,WM,BM P,Android ; ,IC,Digital Baseband Processor		
7	U201	IC	EUSY0306201	Micro pak ,8 PIN,R/TP ,D Flip Flip		
7	U202	IC	EUSY0216301	SC70 ,5 PIN,R/TP ,Single 2-Input NAND Gate		
7	U301	IC	EUSY0395604	FBGA ,137 ,ETC ,4G(LB/256Mx16) NAND+4G(DDR400/16Mx4x32*2_2CS_2CKE) SDRAM ; , ,IC,MCP		
7	U400	IC	EUSY0342201	CSP ,137 PIN,R/TP ,PMIC, for MSM7xxx ; ,IC,PMIC		
7	U600	MODULE,ETC	SMZY0024901	WiFi 11bg+BT+FM Module 9x7.8 x1.2,54pin,BCM4325D1 ; ,WLAN		
7	U601	IC	EUSY0355701	PLP1010-4 ,4 PIN,R/TP ,150mA 2.8V Single LDO ; , ,IC,Voltage Regulator		
7	X200	VCTCXO	EXSK0007802	19.2 MHz,1.5 PPM,10 pF,SMD ,3.3*2.5*1.0 , , , ,2PPM ,2.8V , , , ,SMD ,P/TP		
7	X400	X-TAL	EXXY0024301	32.768 KHz,20 PPM,12.5 pF,70 Kohm,SMD ,3.2*1.5*0.9 , -40'C ~ +85'C, C0 1.05pF, C1 1fF ; ,32.768 ,20PPM ,12.5 , ,SMD ,R/TP		
7	X600	TCXO	EXST0001901	26 MHz,2.5 PPM,10 pF,SMD ,32*15*1.0 ,TI_WL1251 ; , ,2.5PPM ,2.8V , , , ,SMD ,R/TP		
7	ZD400	DIODE,TVS	EDTY0008610	SOD-523 ,5 V,250 W,R/TP ,PB-FREE		
6	SAFD00	PCB ASSY,MAIN,SMT TOP	SAFD0134601			
7	ANT600	ANTENNA,MOBILE,FIXED	SNMF0051501	5 , -5 dB,Internal, BT, Chip, Pb Free ; ,SINGLE , , ,		
7	C1002	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
7	C1004	INDUCTOR,CHIP	ELCH0001430	100 nH,J ,1005 ,R/TP ,PBFREE		
7	C1007	CAP,CERAMIC,CHIP	ECCH0009216	22 pF,25V ,J ,X7R ,TC ,0603 ,R/TP		
7	C1008	CAP,CERAMIC,CHIP	ECCH0017601	4.7 uF,6.3V ,M ,X5R ,HD ,1005 ,R/TP ; , ,20% ,6.3V ,X5R , -55TO+85C ,1005 ,R/TP , mm		
7	C1009	CAP,CERAMIC,CHIP	ECCH0000196	0.75 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP		
7	C1010	CAP,CERAMIC,CHIP	ECCH0000183	1.8 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP		
7	C1011	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
7	C1012	CAP,CERAMIC,CHIP	ECCH0000175	2.7 pF,50V ,B ,NP0 ,TC ,1005 ,R/TP		
7	C1014	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		

11. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Spec	Color	Remark
7	C1018	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
7	C1019	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
7	C1021	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
7	C1022	CAP,CHIP,MAKER	ECZH0001002	0.5 pF,50V ,B ,NP0 ,TC ,1005 ,R/TP		
7	C1023	CAP,CERAMIC,CHIP	ECCH0009216	22 pF,25V ,J ,X7R ,TC ,0603 ,R/TP		
7	C1024	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
7	C1025	CAP,CERAMIC,CHIP	ECCH0009216	22 pF,25V ,J ,X7R ,TC ,0603 ,R/TP		
7	C1026	CAP,CERAMIC,CHIP	ECCH0017601	4.7 uF,6.3V ,M ,X5R ,HD ,1005 ,R/TP , , ,20% ,6.3V ,X5R , -55TO+85C ,1005 ,R/TP , mm		
7	C1027	CAP,CERAMIC,CHIP	ECCH0009103	100 pF,50V ,J ,X7R ,TC ,0603 ,R/TP , , ,[empty] ,[empty] ,C0G ,[empty] ,[empty] ,[empty] ,0.3 mm		
7	C1028	CAP,CHIP,MAKER	ECZH0000844	68 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
7	C1029	CAP,CERAMIC,CHIP	ECCH0000195	3.9 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP		
7	C1031	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
7	C1034	CAP,CHIP,MAKER	ECZH0000830	33 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
7	C1035	CAP,CERAMIC,CHIP	ECCH0009216	22 pF,25V ,J ,X7R ,TC ,0603 ,R/TP		
7	C1036	CAP,CERAMIC,CHIP	ECCH0009216	22 pF,25V ,J ,X7R ,TC ,0603 ,R/TP		
7	C1037	CAP,CERAMIC,CHIP	ECCH0000175	2.7 pF,50V ,B ,NP0 ,TC ,1005 ,R/TP		
7	C1038	CAP,CHIP,MAKER	ECZH0001002	0.5 pF,50V ,B ,NP0 ,TC ,1005 ,R/TP		
7	C1039	CAP,CHIP,MAKER	ECZH0000839	4.7 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP		
7	C1040	CAP,CHIP,MAKER	ECZH0000830	33 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
7	C1041	CAP,CERAMIC,CHIP	ECCH0000123	51 pF,50V,J,NP0,TC,1005,R/TP		
7	C1043	CAP,CHIP,MAKER	ECZH0025916	33 pF,25V ,J ,NP0 ,TC ,0603 ,R/TP		
7	C1045	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
7	C1046	CAP,CERAMIC,CHIP	ECCH0009103	100 pF,50V ,J ,X7R ,TC ,0603 ,R/TP , , ,[empty] ,[empty] ,C0G ,[empty] ,[empty] ,[empty] ,0.3 mm		
7	C1048	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
7	C1049	CAP,CERAMIC,CHIP	ECCH0009206	68 pF,25V ,J ,X7R ,TC ,0603 ,R/TP		
7	C1050	CAP,CHIP,MAKER	ECZH0000830	33 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
7	C1051	CAP,CERAMIC,CHIP	ECCH0000901	2.2 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP		
7	C1052	CAP,CERAMIC,CHIP	ECCH0009106	10 nF,16V ,K ,X7R ,TC ,0603 ,R/TP		
7	C1053	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
7	C1055	CAP,CERAMIC,CHIP	ECCH0000195	3.9 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP		

11. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Spec	Color	Remark
7	C1056	CAP,CHIP,MAKER	ECZH0000844	68 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
7	C1057	CAP,CERAMIC,CHIP	ECCH0009103	100 pF,50V ,J ,X7R ,TC ,0603 ,R/TP , , ,[empty] ,[empty] ,C0G ,[empty] ,[empty] ,[empty] ,0.3 mm		
7	C1060	CAP,CERAMIC,CHIP	ECCH0009216	22 pF,25V ,J ,X7R ,TC ,0603 ,R/TP		
7	C1061	CAP,CERAMIC,CHIP	ECCH0009216	22 pF,25V ,J ,X7R ,TC ,0603 ,R/TP		
7	C1062	CAP,CERAMIC,CHIP	ECCH0005604	10000000 pF,6.3V ,M ,X5R ,TC ,1608 ,R/TP , , ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,0.8 mm		
7	C1063	CAP,CHIP,MAKER	ECZH0001002	0.5 pF,50V ,B ,NP0 ,TC ,1005 ,R/TP		
7	C1064	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
7	C1066	CAP,CERAMIC,CHIP	ECCH0009103	100 pF,50V ,J ,X7R ,TC ,0603 ,R/TP , , ,[empty] ,[empty] ,C0G ,[empty] ,[empty] ,[empty] ,0.3 mm		
7	C1067	CAP,CERAMIC,CHIP	ECCH0009103	100 pF,50V ,J ,X7R ,TC ,0603 ,R/TP , , ,[empty] ,[empty] ,C0G ,[empty] ,[empty] ,[empty] ,0.3 mm		
7	C1068	CAP,CERAMIC,CHIP	ECCH0000117	27 pF,50V,J,NP0,TC,1005,R/TP		
7	C1069	CAP,CERAMIC,CHIP	ECCH0017601	4.7 uF,6.3V ,M ,X5R ,HD ,1005 ,R/TP , , ,20% ,6.3V ,X5R , -55TO+85C ,1005 ,R/TP , mm		
7	C1070	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
7	C1071	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
7	C1073	CAP,CERAMIC,CHIP	ECCH0005604	10000000 pF,6.3V ,M ,X5R ,TC ,1608 ,R/TP , , ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,0.8 mm		
7	C1075	CAP,CERAMIC,CHIP	ECCH0009103	100 pF,50V ,J ,X7R ,TC ,0603 ,R/TP , , ,[empty] ,[empty] ,C0G ,[empty] ,[empty] ,[empty] ,0.3 mm		
7	C1076	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
7	C1077	CAP,CERAMIC,CHIP	ECCH0009206	68 pF,25V ,J ,X7R ,TC ,0603 ,R/TP		
7	C1080	CAP,CHIP,MAKER	ECZH0000844	68 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
7	C1081	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
7	C1082	CAP,CERAMIC,CHIP	ECCH0009103	100 pF,50V ,J ,X7R ,TC ,0603 ,R/TP , , ,[empty] ,[empty] ,C0G ,[empty] ,[empty] ,[empty] ,0.3 mm		
7	C1084	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
7	C1085	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
7	C1086	CAP,CERAMIC,CHIP	ECCH0000183	1.8 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP		
7	C1087	CAP,CERAMIC,CHIP	ECCH0009106	10 nF,16V ,K ,X7R ,TC ,0603 ,R/TP		
7	C1090	CAP,CERAMIC,CHIP	ECCH0009103	100 pF,50V ,J ,X7R ,TC ,0603 ,R/TP , , ,[empty] ,[empty] ,C0G ,[empty] ,[empty] ,[empty] ,0.3 mm		
7	C1091	CAP,CERAMIC,CHIP	ECCH0000180	3.3 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP		
7	C1092	CAP,CERAMIC,CHIP	ECCH0009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
7	C1093	CAP,CHIP,MAKER	ECZH0000839	4.7 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP		

11. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Spec	Color	Remark
7	C1094	CAP,CERAMIC,CHIP	ECCH0000901	2.2 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP		
7	C1095	CAP,CERAMIC,CHIP	ECCH0000180	3.3 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP		
7	C1096	CAP,CERAMIC,CHIP	ECCH00009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
7	C1097	CAP,CERAMIC,CHIP	ECCH00009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
7	C1098	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
7	C1100	CAP,CERAMIC,CHIP	ECCH0000112	15 pF,50V,J,NP0,TC,1005,R/TP		
7	C1101	CAP,CERAMIC,CHIP	ECCH00006201	4.7 uF,6.3V ,K ,X5R ,TC ,1608 ,R/TP		
7	C1102	CAP,CERAMIC,CHIP	ECCH00009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
7	C1103	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
7	C1109	CAP,CERAMIC,CHIP	ECCH0000195	3.9 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP		
7	C1112	CAP,CERAMIC,CHIP	ECCH00009216	22 pF,25V ,J ,X7R ,TC ,0603 ,R/TP		
7	C1114	CAP,CERAMIC,CHIP	ECCH00009216	22 pF,25V ,J ,X7R ,TC ,0603 ,R/TP		
7	C3	INDUCTOR,CHIP	ELCH0001430	100 nH,J ,1005 ,R/TP ,PBFREE		
7	C4	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
7	C444	CAP,CERAMIC,CHIP	ECCH00009216	22 pF,25V ,J ,X7R ,TC ,0603 ,R/TP		
7	C447	CAP,CERAMIC,CHIP	ECCH0017301	1000000 pF,6.3V ,M ,X5R ,HD ,0603 ,R/TP , , 1 ,20% ,6.3V ,X5R , -55TO+85C ,0603 ,R/TP ,0.3 mm		
7	C448	CAP,TANTAL,CHIP	ECTH0005203	33 uF,10V ,M ,STD ,2012 ,R/TP , , , [empty] , [empty] , [empty] , [empty] , [empty] , [empty] , [empty] , [empty] , [empty]		
7	C449	CAP,CERAMIC,CHIP	ECCH00009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
7	C450	CAP,CERAMIC,CHIP	ECCH00009101	0.1 uF,6.3V ,K ,X5R ,TC ,0603 ,R/TP		
7	C451	CAP,CERAMIC,CHIP	ECCH0017301	1000000 pF,6.3V ,M ,X5R ,HD ,0603 ,R/TP , , 1 ,20% ,6.3V ,X5R , -55TO+85C ,0603 ,R/TP ,0.3 mm		
7	C455	CAP,CERAMIC,CHIP	ECCH00009226	39 pF,25V ,J ,X7R ,TC ,0603 ,R/TP		
7	C457	CAP,CHIP,MAKER	ECZH0003503	1 uF,25V ,K ,X5R ,HD ,1608 ,R/TP		
7	C458	CAP,TANTAL,CHIP	ECTH0005203	33 uF,10V ,M ,STD ,2012 ,R/TP , , , [empty] , [empty] , [empty] , [empty] , [empty] , [empty] , [empty] , [empty] , [empty]		
7	C5	CAP,CERAMIC,CHIP	ECCH00009103	100 pF,50V ,J ,X7R ,TC ,0603 ,R/TP , , , [empty] , [empty] ,C0G , [empty] , [empty] , [empty] ,0.3 mm		
7	C500	CAP,CERAMIC,CHIP	ECCH0017301	1000000 pF,6.3V ,M ,X5R ,HD ,0603 ,R/TP , , 1 ,20% ,6.3V ,X5R , -55TO+85C ,0603 ,R/TP ,0.3 mm		
7	C501	CAP,CERAMIC,CHIP	ECCH0017301	1000000 pF,6.3V ,M ,X5R ,HD ,0603 ,R/TP , , 1 ,20% ,6.3V ,X5R , -55TO+85C ,0603 ,R/TP ,0.3 mm		
7	C502	CAP,CERAMIC,CHIP	ECCH0017301	1000000 pF,6.3V ,M ,X5R ,HD ,0603 ,R/TP , , 1 ,20% ,6.3V ,X5R , -55TO+85C ,0603 ,R/TP ,0.3 mm		
7	C503	CAP,CERAMIC,CHIP	ECCH0017601	4.7 uF,6.3V ,M ,X5R ,HD ,1005 ,R/TP , , , 20% ,6.3V ,X5R , -55TO+85C ,1005 ,R/TP , mm		

11. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Spec	Color	Remark
7	C504	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
7	C505	CAP,CERAMIC,CHIP	ECCH0017301	1000000 pF,6.3V ,M ,X5R ,HD ,0603 ,R/TP , , ,1 ,20% ,6.3V ,X5R ,-55TO+85C ,0603 ,R/TP ,0.3 mm		
7	C506	CAP,CERAMIC,CHIP	ECCH0005604	10000000 pF,6.3V ,M ,X5R ,TC ,1608 ,R/TP , , , ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,0.8 mm		
7	C507	CAP,CERAMIC,CHIP	ECCH0032801	220 nF,6.3V ,M ,X5R ,HD ,0603 ,R/TP , , , ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,0.3 mm		
7	C508	CAP,CERAMIC,CHIP	ECCH0032801	220 nF,6.3V ,M ,X5R ,HD ,0603 ,R/TP , , , ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,0.3 mm		
7	C509	CAP,CERAMIC,CHIP	ECCH0009110	22 nF,6.3V ,K ,X7R ,TC ,0603 ,R/TP		
7	C510	CAP,CERAMIC,CHIP	ECCH0009110	22 nF,6.3V ,K ,X7R ,TC ,0603 ,R/TP		
7	C517	CAP,CERAMIC,CHIP	ECCH0009106	10 nF,16V ,K ,X7R ,TC ,0603 ,R/TP		
7	C518	CAP,CERAMIC,CHIP	ECCH0009106	10 nF,16V ,K ,X7R ,TC ,0603 ,R/TP		
7	C519	CAP,CERAMIC,CHIP	ECCH0009216	22 pF,25V ,J ,X7R ,TC ,0603 ,R/TP		
7	C520	CAP,CERAMIC,CHIP	ECCH0009216	22 pF,25V ,J ,X7R ,TC ,0603 ,R/TP		
7	C521	CAP,CERAMIC,CHIP	ECCH0017301	1000000 pF,6.3V ,M ,X5R ,HD ,0603 ,R/TP , , ,1 ,20% ,6.3V ,X5R ,-55TO+85C ,0603 ,R/TP ,0.3 mm		
7	C522	CAP,CERAMIC,CHIP	ECCH0009514	10 pF,25V ,D ,C0G ,HD ,0603 ,R/TP , , , ,[empty] ,[empty] ,[empty] ,[empty] ,0.3 mm		
7	C6	CAP,CHIP,MAKER	ECZH0025916	33 pF,25V ,J ,NP0 ,TC ,0603 ,R/TP		
7	C604	CAP,CHIP,MAKER	ECZH0001002	0.5 pF,50V ,B ,NP0 ,TC ,1005 ,R/TP		
7	C605	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
7	C624	CAP,CHIP,MAKER	ECZH0000822	1.5 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP		
7	C8	CAP,CHIP,MAKER	ECZH0025920	1 nF,16V ,K ,X7R ,HD ,0603 ,R/TP , , , ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,[empty]		
7	D501	DIODE,TVS	EDTY0008606	DFN-2 ,7.82 V,150 mW,R/TP ,PB-FREE		
7	D504	DIODE,TVS	EDTY0009801	SOT-963 ,5 V,25 W,R/TP , , , , , , , ,[empty] ,[empty] ,2P ,1		
7	D505	DIODE,TVS	EDTY0008606	DFN-2 ,7.82 V,150 mW,R/TP ,PB-FREE		
7	FB502	FILTER,BEAD,CHIP	SFBH0008102	1800 ohm,1005 ,Bead		
7	FB503	FILTER,BEAD,CHIP	SFBH0008102	1800 ohm,1005 ,Bead		
7	FB504	FILTER,BEAD,CHIP	SFBH0008102	1800 ohm,1005 ,Bead		
7	FL1001	FILTER,SAW	SFSY0033403	1575.42 MHz,1.4*1.1*0.4 ,SMD ,1574.42M~1576.42M, IL 1.2, 5pin, U-U, 50-50, GPS HIGH ATTEN. , , ,1575.42 ,1.4*1.1*0.4 ,SMD ,R/TP		
7	FL1002	DUPLEXER,IMT	SDMY0002801	897.5 MHz,942.5 MHz,2.9 dB,3.8 dB,55 dB,45 dB,2.5*2.0*0.94 ,SMD ,SAW, Band8, Rx balance type , , ,942.5 ,925 to 960 ,897.5 ,880 to 915 ,3.8 ,2.9 ,2.5x2.0x0.94 ,DUAL ,SMD ,R/TP		

11. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Spec	Color	Remark
7	FL1003	DUPLEXER,IMT	SDMY0001901	1950 MHz,2140 MHz,1.8 dB,2.4 dB,52 dB,43 dB,2.5*2.0*0.55 ,SMD ,Band1, 2520size, SAW, Rx unbal ; , 2140 ,2110 to 2170 ,1950 ,1920 to 1980 ,2.4 ,1.8 ,2.5x2.0x0.55 ,DUAL ,SMD ,R/TP		
7	FL1004	FILTER,SAW	SFSY0035001	2140 MHz,1.4*1.1*0.45 ,SMD ,2110M~2170M, IL 2.3, 5pin, U-B, 50-100_20, WCDMA BAND I Rx ; , 2140 ,1.4*1.1*0.45 ,SMD ,R/TP		
7	FL1005	FILTER,SAW	SFSY0035101	1950 MHz,1.4*1.1*0.45 ,SMD ,1920M~1980M, IL 3.2, 5pin, U-U, 50-50, WCDMA BAND I Tx ; , 1950 ,1.4*1.1*0.45 ,SMD ,R/TP		
7	FL1006	FILTER,SAW	SFSY0037601	897.5 MHz,1.4*1.1*0.4 ,SMD ,880M~915M, IL 3.6, 5pin, U-U, 50-50, W-BAND VIII Tx ; , 897.5 ,1.4*1.1*0.4 ,SMD ,R/TP		
7	FL1007	FILTER,SEPERATOR	SFAY0012501	, , dB, dB, dB,4532 ,		
7	FL400	FILTER,EMI/POWER	SFEY0006501	SMD ,3 TERMINAL EMI FILTER		
7	IC500	IC	EUSY0360201	CSP ,20 ,R/TP ,Class D(mono) + Capless HP + A/S ; ,IC,Audio Sub System		
7	J1	CONN,SOCKET	ENSY0024301	6 ,ETC , ,2.54 mm,16.3x17.4x1.5t, Stopper		
7	L1001	INDUCTOR,CHIP	ELCH0004713	6.8 nH,J ,1005 ,R/TP ,		
7	L1002	INDUCTOR,CHIP	ELCH0004710	15 nH,J ,1005 ,R/TP ,		
7	L1003	INDUCTOR,CHIP	ELCH0004720	1.2 nH,S ,1005 ,R/TP ,		
7	L1004	INDUCTOR,CHIP	ELCH0004720	1.2 nH,S ,1005 ,R/TP ,		
7	L1005	INDUCTOR,CHIP	ELCH0001430	100 nH,J ,1005 ,R/TP ,PBFREE		
7	L1006	INDUCTOR,CHIP	ELCH0004721	2.2 nH,S ,1005 ,R/TP ,		
7	L1007	INDUCTOR,CHIP	ELCH0003816	3.6 nH,S ,1005 ,R/TP ,		
7	L1008	INDUCTOR,CHIP	ELCH0004710	15 nH,J ,1005 ,R/TP ,		
7	L1009	INDUCTOR,CHIP	ELCH0003816	3.6 nH,S ,1005 ,R/TP ,		
7	L1010	INDUCTOR,CHIP	ELCH0004708	2.7 nH,S ,1005 ,R/TP ,		
7	L1011	INDUCTOR,CHIP	ELCH0001401	15 nH,J ,1005 ,R/TP ,Pb Free		
7	L1012	INDUCTOR,CHIP	ELCH0004721	2.2 nH,S ,1005 ,R/TP ,		
7	L1013	INDUCTOR,CHIP	ELCH0004721	2.2 nH,S ,1005 ,R/TP ,		
7	L1014	INDUCTOR,CHIP	ELCH0001048	10 nH,J ,1005 ,R/TP ,PBFREE		
7	L1015	INDUCTOR,CHIP	ELCH0004701	12 nH,J ,1005 ,R/TP ,		
7	L1016	INDUCTOR,CHIP	ELCH0003815	2.7 nH,S ,1005 ,R/TP ,		
7	L1017	INDUCTOR,CHIP	ELCH0004712	3.9 nH,S ,1005 ,R/TP ,		
7	L1018	INDUCTOR,CHIP	ELCH0004726	1.5 nH,J ,1005 ,R/TP ,		
7	L1019	INDUCTOR,CHIP	ELCH0004714	18 nH,J ,1005 ,R/TP ,		

11. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Spec	Color	Remark
7	L1020	INDUCTOR,CHIP	ELCH0004712	3.9 nH,S ,1005 ,R/TP ,		
7	L1021	INDUCTOR,CHIP	ELCH0004701	12 nH,J ,1005 ,R/TP ,		
7	L1022	INDUCTOR,CHIP	ELCH0004701	12 nH,J ,1005 ,R/TP ,		
7	L1023	INDUCTOR,CHIP	ELCH0004708	2.7 nH,S ,1005 ,R/TP ,		
7	L1024	INDUCTOR,CHIP	ELCH0004704	4.7 nH,S ,1005 ,R/TP ,		
7	L1025	INDUCTOR,CHIP	ELCH0004105	1.2 nH,S ,0603 ,R/TP ,MLCI		
7	L1026	INDUCTOR,CHIP	ELCH0004710	15 nH,J ,1005 ,R/TP ,		
7	L601	INDUCTOR,CHIP	ELCH0004704	4.7 nH,S ,1005 ,R/TP ,		
7	R1	RES,CHIP	ERHY0009516	2.2 Kohm,1/20W(0.05W) ,J ,0603 ,R/TP		
7	R1001	RES,CHIP	ERHY0009501	0 ohm,1/20W(0.05W) ,J ,0603 ,R/TP		
7	R1002	PCB ASSY,MAIN,PAD OPEN	SAFO0000401	0OHM DNI		
7	R1003	RES,CHIP,MAKER	ERHZ0000327	180 ohm,1/16W ,F ,1005 ,R/TP		
7	R1005	RES,CHIP,MAKER	ERHZ0000456	2.2 ohm,1/16W ,J ,1005 ,R/TP		
7	R1006	RES,CHIP,MAKER	ERHZ0003801	5.1 ohm,1/16W ,J ,1005 ,R/TP		
7	R1007	RES,CHIP,MAKER	ERHZ0000411	120 ohm,1/16W ,J ,1005 ,R/TP		
7	R1008	RES,CHIP,MAKER	ERHZ0003801	5.1 ohm,1/16W ,J ,1005 ,R/TP		
7	R1009	RES,CHIP,MAKER	ERHZ0000404	1 Kohm,1/16W ,J ,1005 ,R/TP		
7	R1010	RES,CHIP,MAKER	ERHZ0000517	91 ohm,1/16W ,J ,1005 ,R/TP		
7	R1011	RES,CHIP,MAKER	ERHZ0000490	51 ohm,1/16W ,J ,1005 ,R/TP		
7	R1012	RES,CHIP,MAKER	ERHZ0000402	10 ohm,1/16W ,J ,1005 ,R/TP		
7	R1013	RES,CHIP,MAKER	ERHZ0000212	12 Kohm,1/16W ,F ,1005 ,R/TP		
7	R1014	RES,CHIP,MAKER	ERHZ0000405	10 Kohm,1/16W ,J ,1005 ,R/TP		
7	R1015	RES,CHIP,MAKER	ERHZ0000411	120 ohm,1/16W ,J ,1005 ,R/TP		
7	R1016	RES,CHIP,MAKER	ERHZ0000517	91 ohm,1/16W ,J ,1005 ,R/TP		
7	R1017	RES,CHIP,MAKER	ERHZ0000327	180 ohm,1/16W ,F ,1005 ,R/TP		
7	R1018	RES,CHIP,MAKER	ERHZ0000443	2200 ohm,1/16W ,J ,1005 ,R/TP		
7	R1020	RES,CHIP,MAKER	ERHZ0000512	82 ohm,1/16W ,J ,1005 ,R/TP		
7	R1021	RES,CHIP,MAKER	ERHZ0000457	30 ohm,1/16W ,J ,1005 ,R/TP		
7	R1022	RES,CHIP	ERHY0009504	1 Kohm,1/20W(0.05W) ,J ,0603 ,R/TP		
7	R1023	RES,CHIP	ERHY0009504	1 Kohm,1/20W(0.05W) ,J ,0603 ,R/TP		
7	R1024	RES,CHIP	ERHY0009504	1 Kohm,1/20W(0.05W) ,J ,0603 ,R/TP		

11. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Spec	Color	Remark
7	R1025	RES,CHIP	ERHY0009504	1 Kohm,1/20W(0.05W) ,J ,0603 ,R/TP		
7	R1026	RES,CHIP,MAKER	ERHZ0000434	1 ohm,1/16W ,J ,1005 ,R/TP		
7	R2	RES,CHIP	ERHY0009504	1 Kohm,1/20W(0.05W) ,J ,0603 ,R/TP		
7	R424	RES,CHIP,MAKER	ERHZ0000222	150 Kohm,1/16W ,F ,1005 ,R/TP		
7	R425	RES,CHIP,MAKER	ERHZ0000288	470 Kohm,1/16W ,F ,1005 ,R/TP		
7	R426	RES,CHIP	ERHY0009516	2.2 Kohm,1/20W(0.05W) ,J ,0603 ,R/TP		
7	R427	RES,CHIP	ERHY0009526	4.7 Kohm,1/20W(0.05W) ,J ,0603 ,R/TP		
7	R428	RES,CHIP	ERHY0009505	10 Kohm,1/20W(0.05W) ,J ,0603 ,R/TP		
7	R429	RES,CHIP	ERHY0009526	4.7 Kohm,1/20W(0.05W) ,J ,0603 ,R/TP		
7	R432	RES,CHIP,MAKER	ERHZ0003901	0.1 ohm,1/4W ,F ,2012 ,R/TP ,; ,0.1 ,1% ,1/4W ,2012 ,R/TP		
7	R500	RES,CHIP	ERHY0009526	4.7 Kohm,1/20W(0.05W) ,J ,0603 ,R/TP		
7	R501	RES,CHIP	ERHY0009505	10 Kohm,1/20W(0.05W) ,J ,0603 ,R/TP		
7	R502	RES,CHIP,MAKER	ERHZ0000422	15 Kohm,1/16W ,J ,1005 ,R/TP		
7	R505	RES,CHIP	ERHY0009526	4.7 Kohm,1/20W(0.05W) ,J ,0603 ,R/TP		
7	R508	RES,CHIP	ERHY0009524	47 ohm,1/20W(0.05W) ,J ,0603 ,R/TP		
7	SPFY00	PCB,MAIN	SPFY0215601	FR-4 ,0.75 mm,ANY-LAYER10 ,; , , , , , , , , , ,		
7	SW1001	CONN,RF SWITCH	ENWY0004001	,SMD ,1.3 dB,		
7	SW1002	CONN,RF SWITCH	ENWY0006801	,SMD , dB, ,; ,0.40MM ,STRAIGHT ,SOCKET ,SMD ,[empty] ,[empty] , ,		
7	U1001	MODULE,ETC	SMZY0021701	GPS LNA Module integrated Filter, 3.3x2.1x1.1 ,; ,RF Module		
7	U1002	PAM	SMPY0020101	dBm, %, A, dBc, dB,4x5 ,SMD ,3G Dual PAM B1+8. Coupler Integrated ,; , , , , , , ,LGA ,R/TP ,		
7	U1003	IC	EUSY0344001	QFN ,68 ,R/TP ,Quad GSM, Tri WCDMA RF Transceiver ,; ,IC,Tx/Rx		
7	U1004	PAM	SMPY0019101	dBm, %, A, dBc, dB,5x5 ,SMD ,Polar Edge for QCT ,; , , , , , , ,LGA ,R/TP ,		
7	U401	IC	EUSY0353801	PLP1010-4 ,4 PIN,R/TP ,1x1 LDO, 3.3V , 150mA ,; ,IC,LDO Voltage Regulator		
7	U402	IC	EUSY0371201	WLP ,20 ,R/TP ,MUIC for 5Pin Micro USB ,; ,IC,Analog Switch		
7	U403	TR,FET,P-CHANNEL	EQFP0008601	DFN8 ,1.3 W,-20 V,-3.9 A,R/TP ,Intergrated power MOSFET with PNP Transistor		
7	U404	IC	EUSY0374601	TDFN ,8 ,R/TP ,Programmable OVP ,; ,IC,Charger		
7	U500	IC	EUSY0355501	PLP1010-4 ,4 PIN,R/TP ,1.8V 150mA Single LDO ,; ,IC,LDO Voltage Regulator		

11. EXPLODED VIEW & REPLACEMENT PART LIST

11.3 Accessory

Note: This Chapter is used for reference, Part order is ordered by SBOM standard on GCSC

Level	Location No.	Description	Part Number	Spec	Color	Remark
3	SBPL00	BATTERY PACK,LI-ION	SBPL0100001	3.7 V,900 mAh,1 CELL,PRISMATIC ,533640,Innerpack,WW ; , 3.7 ,900 ,180 ,PRISMATIC ,5.3xx36x40 ,5.7x41x39 ,BLACK ,innerpack ,		P', 24
3	SGDY00	DATA CABLE	SGDY0016701	; ,[empty] ,[empty] ,1.2M , ,BLACK ,1.2m, 4, Shield case MicroUSB, ID resistor open ,N		
3	SGEY00	EAR PHONE/EAR MIKE SET	SGEY0007610	; ,20mW ,16 ohm ,99dB,1KHZ,1mW ,65dB 10KHZ ,104dB 100KHZ ,[empty] ,[empty] ,3.5 L TYPE STEREO 4POLE PLUG ,Mic Slimtype Canal(BK) ,Earphone,Stereo		
3	SSAD00	ADAPTOR,AC-DC	SSAD0031001	100-240V ,5060 Hz,5.1 V,0.7 A,CE ,STA-U12ED, Europe, Cableless ; , ,5.1 ,0.7 , , ,WALL 2P ,USB ,		
대 치		ADAPTOR,AC-DC	SSAD0031002	100-240V ,5060 Hz,5.1 V,0.7 A,CE ,STA-U12ER, Europe, Cableless ; , ,5.1 ,0.7 , , ,WALL 2P ,USB ,		
대 치		ADAPTOR,AC-DC	SSAD0031003	100-240V ,5060 Hz,5.1 V,0.7 A,CE ,STA-U12ES, Europe, Cableless ; , ,5.1 ,0.7 , , ,WALL 2P ,USB ,		